Vol. 30 - N. 4
December 2011

Rivista Italiana di Colon-Proctologia
Founded in 1982

ISSN 1973-4905

PELVIPERINEOLOGY

A multidisciplinary pelvic floor journal

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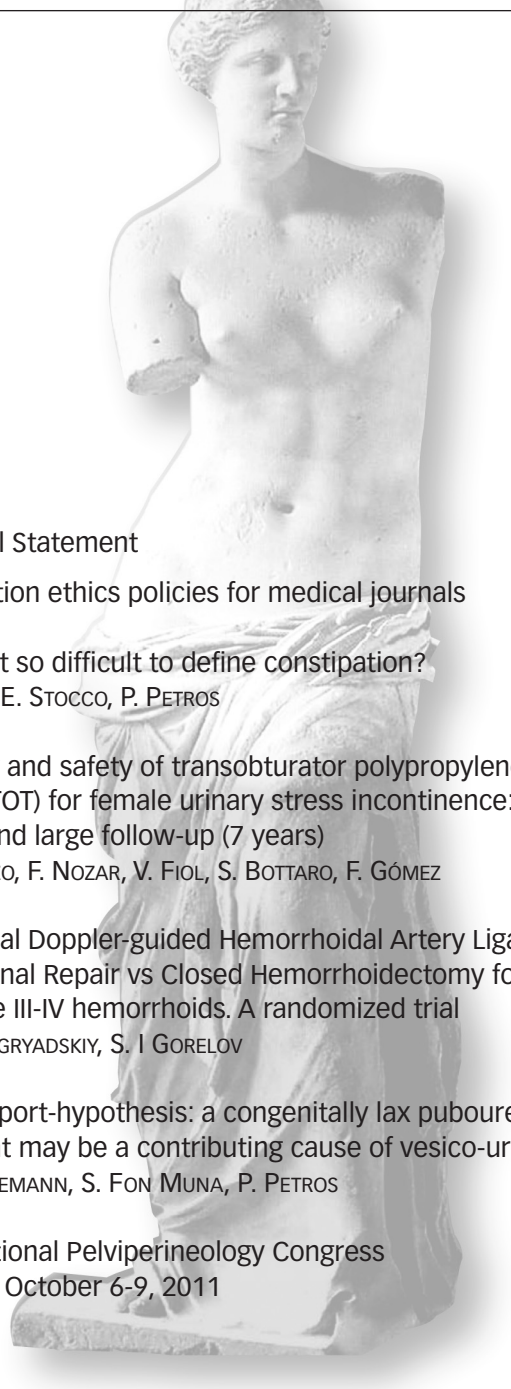

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Vol. 30
N. 4
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Rivista Italiana di Colon-Proctologia
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Official Journal of the: International Society for Pelviperineology (www.pelviperineology.com)
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International Pelvic Floor Dysfunction Society
Pelvic Reconstructive Surgery and Incontinence Association (Turkey)
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Romanian Uro-Gyn Society

Editorial Office: Enrico Belluco
c/o Clinica Chirurgica 2 University of Padova, 35128, Padova, Italy
e-mail: **editor@pelviperineology.org**
Quarterly journal of scientific information registered at the Tribunale di Padova, Italy n. 741 dated 23-10-1982 and 26-05-2004
Editorial Director: Giuseppe Dodi
Printer "Tipografia Veneta" Via E. Dalla Costa, 6 - 35129 Padova - e-mail: info@tipografiaveneta.it

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"Publication ethics policies for medical journals"

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Why is it so difficult to define constipation?

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Abstract: There are major problems in defining constipation. The variety of definitions amongst studies, is a large issue. The literature shows that physicians and patients define constipation differently. "Unsatisfactory defecation with stool retention" is a definition that appears to be well understood by patients and meets the opinion of the physicians. In discussing defecation with patients, "satisfaction" is a single subjective item that includes the patient's perception both in slow transit and outlet obstruction. It recalls the quality of life and it seems preferable to any choice of items that can be found in the various scoring systems. The quantification of the symptoms by scoring all the items is essential for defining the severity of the condition. The Integral Theory System gives further light to the pathophysiology of defecation.

Key words: Constipation; Defecation; Communication; Integral Theory.

INTRODUCTION

In the "land" of the pelvic floor where three main specialists, the urologist, gynaecologist and coloproctologist in most cases still work separately, but often share patients' complaints, a common language is quite important to better understanding what patients and colleagues mean when they say something. Defining constipation, and faecal incontinence as well, is a difficult task as patients and physicians have quite different feelings and opinions on the matter. This is not only a communication or semantic problem, but it carries important implications in therapeutic decisions and in running clinical trials.

The spectrum of symptoms in constipated patients is quite broad, and each of them may be attributed to many etiologies. Which one of those needs to be corrected in a more or less invasive way is just the final part of the problem. The classification of low transit constipation or pelvic outlet obstruction is quite schematic, as many other reasons may intervene in the genesis of the trouble: mechanical/anatomical, metabolic, dietary, pharmacologic, endocrine, psychological, neurogenic, etc. Patients basically consider themselves constipated only in case of infrequent evacuations or hard stools. Physicians use the term constipation to define also incomplete, difficult, prolonged defecation, with the need of assistance. Since the beginning of their communication, patients and doctors often disagree on what they are talking about. Even the collection of a stool diary might be difficult, as the patient may not find his own experience within the questions he is asked to answer. Problems difficult to categorize, such as constipation or faecal incontinence, must therefore be described using a long list of symptoms with various scoring systems.

The Cleveland Clinic Score (CCS)[1] has been the first attempt to classify constipation severity. It includes the following items scored 0.30: evacuation frequency, incomplete defecation, difficult defecation, years of constipation, time needed to evacuate, unsuccessful defecation, assistance (laxatives, enemas, digitations), abdominal pain. The Rome III criteria[2] are preferred by gastroenterologists. A diagnosis of constipation must include fewer than three defecations per week, and in at least 25% of defecations two or more of the following: straining and hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction, digital evacuation or support of the pelvic floor, and these criteria must be fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis. Stool form has been demonstrated to be significantly correlated to the transit time (Bristol Stool Form Scale).[3]

A distinction between slow transit constipation and obstructed defecation is difficult as symptoms may overlap and several anatomical findings may co-exist such as pelvic floor dyssynergia or anismus, rectocele, intussusception, rectal inertia, perineal descent, etc., also in association with psychological disturbances. Altomare[4] has proposed a validated score system for obstructed defecation (from 0 to 4) with a specific selection of the items. We routinely add to the CCS an additional score that summarizes the number of items with the highest score (3 and 4) and the number of doctors consulted for the constipation[5], the former to verify when patients defecate every day by using laxatives and have a minimal score,[6, 7] the latter being considered an important index of psychologic distress.[8-10]

DEFINITION OF CONSTIPATION

Constipation is an *anal dysfunction* defined as "*inability to evacuate*"[11], but one defecation per week or quite hard stools might be normal for somebody, and an unacceptable inconvenient for many others. Once an organic disease such a cancer has been ruled out with the proper tests, the individual self-evaluation is necessarily the key to decide whether a patient actually needs a treatment. When evaluating the posterior compartment in a patient with any pelvic floor complaint, a pivotal question is whether he is "happy" with his defecations. In case the answer is *no* we must investigate whether there is a propensity or not to stool retention. Doing so we have met the main aspect of constipation, that is an *unsatisfactory defecation*. This highly subjective feeling may strongly influence the quality of life without any abnormality in the functional or imaging investigations that are at present available. This first statement is extremely important, as the quality of life may be very low if a patient is very unhappy about his/her defecation, and puts a strong light on the problem. The other numerous aspects of *stool retention* will then be inquired about. The *definition* of constipation does not have to coincide with the *severity* of a score, but rather with the sense of the complaint. Shafik[12] defining constipation as "rare defecation, difficult defecation, or both" refers to the two main mechanisms related to this complex functional disorders, that is the low transit constipation and the obstructed defecation. It is hard however to clearly separate and distinguish in the same patient and in a particular moment of his life the two conditions that often seem to overlap or alternate. To further underline this difficulty in communication, we remember how many times patients complain about an unsatisfactory defecation with some sort of stool retention at home, while recovering on holiday, or vice versa they feel normal at home and constipated when inhibited by a new non familiar toilet. And how often patients with a rectal intus-

susception or a large low rectocele felt with the anal digital examination, or a posterior colpocele with or without enterocele, have absolutely satisfactory bowel habits? We also see patients with prolonged transit time after sexual abuse, eventually regaining a normal colonic transit after a proper psychological therapy. In these conditions invasive treatments are obviously contraindicated. Surgery for prolapses are certainly indicated when the prolapse is external. Operations for occult rectal prolapses (mucosal prolapse and rectal intussusception) are questionable. The placebo effect of surgery in very psychologically fragile patients has to be considered when evaluating the results of procedures that are also at risk for severe complications. A defect of communication and of understanding of what really means "constipation" or "obstructive defecation" becomes the base of legal conflicts when the postoperative results are bad. Information in the media may push the surgical option too strongly for the patient's interest. Imaging with defecography or magnetic resonance may further help this trend, rectoceles and internal prolapses appearing more severe than seen with a correct clinical assessment.

The aim of making a patient just satisfied with his/her defecation coincides with a holistic integrated view of the problem and of the patient, where function and mind might be more important than the anatomy.

The *Musculoelastic Theory of anorectal function and dysfunction*[11,13,14] offers an interesting example of this view on pelvic floor dysfunction, and also the defecation is explained in an innovative way. In the Integral Theory constipation is synonymous with 'obstructed defecation'. Defecation is driven by a neurological reflex which coordinates all the elements required to produce efficient evacuation. Because the main anorectal closure muscles, pubococcygeus muscle, levator plate and longitudinal anal muscle effectively contract around the pubourethral and uterosacral suspensory ligaments, any laxity in these ligaments may invalidate the muscle forces, causing difficulties in both closure (incontinence) or opening (constipation). During defecation, the levator plate stretches the rectovaginal fascia against the perineal body and the fascia is then pulled downwards by the longitudinal muscle against the uterosacral suspensory ligaments to open out the anorectal junction. Connective tissue laxity in these ligaments, in the fascia or perineal body may weaken the opening forces causing 'straining at the stool' and 'constipation'. The perineal body is an insertion point for the external anal sphincter, which is the major insertion point for the longitudinal muscle of the anus, the most important muscle for the external anorectal opening mechanism. Inability of the perineal body complex to splint the anterior wall of the anus explains difficulty in rectal evacuation ('constipation') in some patients, and why digital pressure on the perineum by the patient is often required to aid defecation: a lax perineal body may reduce the downward angulation of levator plate seen during straining to a mere flicker, while the levator plate contracts exaggeratedly upwards and backwards, so digital pressure anchors the perineal body reducing the latter movement, and restoring the downward angulation of the anterior portion of levator plate.[15] Connective tissue weakens and loses elasticity with age, thus preventing the rectum being stretched to the semirigid tube required for evacuation.[16] This may explain the increasing incidence of 'constipation' with age. Using pre and post-operative defecating proctograms to monitor changes in anterior rectal wall intussusception in patients presenting with rectocele and symptoms of obstructed defaecation it was demonstrated how almost all patients were cured of both anterior rectal wall intussusception and defecation symptoms through a posterior sling that repairs the uterosacral ligaments simultaneously to the rectovaginal fascia and perineal body[17].

As regards complex definitions and complex scoring systems, they are a perfect example of what Karl Popper, the great scientific philosopher of the 20th century meant by "an artificial model language".[18]

According to Popper, contradictions arise when an artificial model is created. Popper states "thus the method of constructing artificial model languages is incapable of tackling the problems of the growth of our knowledge; and it is even less able to do so than the method of analysing ordinary languages, simply because these model languages are poorer than ordinary languages. It is a result of their poverty that they yield only the most crude and the most misleading model of the growth of knowledge – the model of an accumulating heap of observation statements".

The Cleveland, Rome, Bristol, Altomare scores, though constructed with the very best of intentions, are meaningless to an interested GP or Gynecologist, and especially, in this electronic age, a patient. Then there is the problem of individual perception mentioned earlier. Not all patients reside in the middle of a bell curve. One symptom may be overwhelmingly disturbing for one patient than another. Yet the weighting in a scoring system is the same. It is easier and better to simply describe the symptom(s) precisely for each patient, and to search for the anatomical, dietary, psychological, or other dysfunctions.

CONCLUSION

A simple and clear definition of constipation is useful to start a fruitful communication between patients and doctors and among different specialists involved in the treatment of pelvic floor diseases sharing an interdisciplinary holistic approach.

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Original article

Efficacy and safety of transobturator polypropylene hernia mesh (TOT) for female urinary stress incontinence: mean and large follow-up (7 years)

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Abstract: *Objectives:* to evaluate the efficacy and safety of transobturator tape in the treatment of female stress urinary incontinence (SUI). To assess the level of satisfaction with the technique. *Methods:* prospective study. Population: 60 patients who underwent TOT procedure from February 2002 to October 2004. Patients were assessed in five temporary sections, up to February 2011. Inclusion criteria: incontinence as a subjective symptom, stress incontinence on physical examination and urodynamic test that confirmed it. Technique: recyclable needles and simple polypropylene mesh instead of commercials kits. *Results:* no vascular, nervous, neither digestive injury was registered. One case of bladder injury. Primary outcomes: 56,7% of the patients are asymptomatic, 25% better and 18,3% do not refer changes. 71,7% are very satisfied, 13,3% mild satisfied and 13,3% unsatisfied. *Conclusions*: the results confirm the effectiveness of TOT in treating female SUI with a low complication rate. The effectiveness of the technique decreases with time.

Key words: Female urinary stress incontinence; TOT.

INTRODUCTION

In 1994 DeLancey proposed the "hammock hypothesis", which states that "increases in urethral closure pressure during a cough probably arise because the urethra is compressed against a hammock-like supporting layer".[1,2,3]

Since Petros and Ulmsten`s concept (1996), minimal invasive surgery using a mid-urethral support without tension (tension free vaginal tape-TVT-technique) has been widespread.[4] TVT has been shown to be effective with a cure rate of incontinence of more than 80%, thus eventually becoming the reference standard technique. The most frequent TVT complications are a consequence of penetrating retropubic space. Therefore, the transobturator tape (TOT) technique has been developed as an alternative to the TVT. Both procedures were designed to reproduce the natural suspension of urethral fascia using a polypropylene mesh. TOT was first described by Delorme in 2001, and consists in placing a tape between the two obturator foramen, thus creating a hammock that should support the urethra, as in the TVT technique.[5,6,7]

Stress incontinence is a condition that can be objectively diagnosed by urodynamic examination, but it is also a subjective symptom. Therefore, the cure has to be defined as absence of subjective complaint of urine leakage.

This prospective study shows the results with a minimum 3-year follow-up on efficacy and safety of TOT.

OBJECTIVES

To evaluate the efficacy and safety of transobturator polypropylene hernia mesh in the treatment of female stress urinary incontinence. To assess the level of satisfaction with the technique.

PATIENTS AND METHODS

From February 2002 to October 2004, 60 patients with stress incontinence from different centers in Montevideo, Uruguay, underwent a TOT with a polypropylene mesh and participated in a prospective study. The inclusion criteria were incontinence as a subjective symptom and visible stress incontinence after physical examination. Before surgery all patients had undergone an urodynamic study that confirmed stress incontinence. The excluded criteria were urinary infection, and severe detrusor instability (no inhibited detrusor contractions major to 40 cm H_2O). Characteristics of patients are presented in Table 1. All surgeries were performed by the same surgeons who had training on TOT and the TOT technique was the same in all cases. All different surgeries performed are presented in Table 2.

The TOT technique consisted in:

– 1.5 mm. anterior vaginal incision, 1 cm below the urethral meathus.

– Paraurethral dissection toward ischiopubic ramus.

– Bilateral genitofemoral incision on a horizontal line that passes through the clitoral hood.

– Passage of the needle from the genitofemoral incision towards the obturator foramen, oriented to the paraurethral space.

– Polypropylene mesh is manual prepared and fixed to the needle. The needle is directed towards the genitofemoral incision.

– Insertion of a Foley catheter and instillation of 300 cc of physiological saline solution. If maximum vesical capacity is over 400 cc, this volume should be instilled.

– The patient is requested to perform the Valsalva maneuver and the tension free tape is adjusted under the mid-urethra.

TABLE 1. – Patients characteristics (N = 60).

Age (yr)	57.9 (27-88)
Parity	2.6 (range:0-9)
Menopausal	38 (63,3%)
Previous incontinence surgery (Kelly-Marion, Burch)	8 (13,3%)
Previous hysterectomy	3 (5%)
Previous prolapse surgery	1 (1,7%)
Cystocele (I or II stage)	56 (93,3%)
Pure stress incontinence	55 (92%)
Mixed	5 (8%)
Urethral hypermobility	52 (86,7%)

TABLE 2. – Concurrent surgery.

TOT only	24
Vaginal hysterectomy	2
Abdominal hysterectomy	3
Vaginal hysterectomy, anterior and posterior colporrhaphy	15
Posterior colporrhaphy	11
Sacro spinous suspensions	11

– Vaginal closure performed with a slow absorption thread running suture.

Removal of Foley catheter after effect of regional anesthesia.

Perioperative hazards (including hemorrhage and bladder or urethral perforation) and postoperative hazards (including urinary retention, urgency, pain and other adverse effects) were evaluated.

The patients were assessed in five temporary sections: October 2005, October 2006, October 2007, October 2008 and February 2011. The evaluation was done by a professional who didn´t participate in the surgery, and was by an adaptation of the Incontinence Impact Questionnaire-short form IIQ-7[8] that was done by telephonic questionnaire. Cure was defined as the absence of subjective complaint of urine leakage and absence of leakage on cough stress testing. Improvement was defined as patients reporting a decrease in stress incontinence. Failure was defined as unchanged or aggravated symptoms.

RESULTS

All patients were evaluated at the end with a minimum 6 year follow-up (range of 6 to 9 years). Neither vascular complications nor nervous or digestive complications appeared during the procedure. One case of bladder rupture was registered, taking into consideration that this patient had a grade 3 anterior cystocele repaired.

Concerning postoperative complications, only one case of urinary retention was registered. In this case, the Foley catheter was kept in place during 3 days and myotonic drugs were prescribed, with good response to treatment. 7% of cases presented urinary urgency postoperatively, which cleared up over time.

Some patients experienced postoperative pain at the passage of the mesh which was treated with analgesics. In one case obturator pain appeared when exercising after 3 years of surgery. No infectious complications showed up.

Results referring to urinary incontinence are shown in Table 3. Between 6 to 9 years follow-up, 56,7% of patients were completely cured, 25% showed improvement and 18,3% showed unchanged symptoms. Concerning satisfaction at the end of the study, 71,7% of the population is very satisfied, 13,3% mild satisfied and 13,3% unsatisfied.

An important outcome to evaluate was the extrusion of the mesh, as our technique uses handmade tapes. We observed two cases (3,3%) of vaginal erosion and mesh extrusion, one at two months, and one after four years of monitoring. Only the second case required removal.

DISCUSSION

TVT has become the gold standard for treatment of stress urinary incontinence, after demonstrating a similar effectiveness to Burch.[9-11] Although the effectiveness of TVT is not discussed, this technique has reported major vascular injuries, associated with 4% to 9% of bladder rupture.[9,10,12,13] On the other hand, TVT requires intraoperatory cystoscopy. TOT is proven to be a safer technique, considering that no major vascular injuries have been reported and neither are they expected, as a result of the anatomic approach of the technique. In this analysis there is a clear decrease in the risk of bladder rupture with TOT, demonstrated as well in other series.[14-19] These results were what as expected because during TOT there is no access to Retzius space, and also the TOT needle is always kept under the level of the levator any muscle.

Previous studies with TOT have reported urethral erosions, which were not observed in the present study.[8,17] In this study no vascular or nervous injuries were detected in using TOT. Postoperative urinary dysfunctions caused by TOT, are significantly reduced in comparison with other suburethral slings. This fact may be in part explained by the horizontal position of the sling that reduces the possibilities of urethral compression. Results concerning the cure and improvement of urinary incontinence with TOT are acceptable. However, in this population it was observed a decrease in efficacy over time. It is possible that the tissue deteriorates with time. On the other hand there may be an anatomical explanation, the pubourethral ligaments descend vertically, and the TOT creates a horizontal neoligament. It would be important to make an analysis of undercurrent variables, such as the status of the striated urethral sphincter, urethral mobility, the context of surgery performed, etc. In this way, it would be possible to make more accurate conclusions. Finally, the TOT technique is easy to learn, reproducible and our modifications of the technique described are inexpensive.

CONCLUSIONS

The results presented in this study show TOT as an effective technique but the effectiveness decreases with time. Moreover, it is a safe procedure with a low rate of complications. An increase in studies and longer evaluation periods will definitely provide us with more information to evaluate the efficacy of this new anti-incontinence technique.

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TABLE 3. – Cure rate at five temporary sections. N: 60.

	Oct 2005	Oct 2006	Oct 2007	May 2008	Feb 2011
Cured	91,7	88,3	85	66,7	56,7
Improved	6,7	11,7	15	26,7	25
Failed	1,6			6,6	18,3

Cured: absence of subjective complaint of urine leakage and absence of leakage in cough stress testing.
Improved: decrease of stress incontinence.
Failed: unchanged or aggravated symptoms.

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Original article

Transanal Doppler-guided Hemorrhoidal Artery Ligation and Recto Anal Repair vs Closed Hemorrhoidectomy for treatment of grade III-IV hemorrhoids. A randomized trial

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Abstract: *Objective:* HAL-RAR is a technique whereby Doppler-guided ligation of hemorrhoidal arteries is combined with a mucopexy of the mucosal prolapse, known as Recto Anal Repair (RAR). HAL-RAR is presented here as an alternative to hemorrhoidectomy. Early and 1-year follow-up results of the procedure are presented and compared with those of closed-scissors hemorrhoidectomy (CH) in a prospective randomized study. *Patients and methods:* One hundred and thirty-five patients with grade III-IV hemorrhoids were randomized for HAL-RAR (n - 65) or CH (n - 70). All operations were done under general anesthesia and local block as day-case surgery. *Results:* Comparing the two groups, there was no significant difference between them in terms of the operating time (36.2±2.3 vs 35.5±3.1 p>0.05), or when the first postoperative bowel movement occurred. The median pain score was higher for the CH group during the first ten days (p<0.05). The average need for minor analgesics was 32.3±12.6 mg (ketatorolac trometamin) in the HAL-RAR group, and 46.1±7.7 mg in the CH group (p<0.001). Patients in the HAL-RAR-group spent 18.3±3.5 hours in the hospital postoperatively, and those in the CH-group 62.0±12.4 hours. Patients in the HAL-RAR group returned to normal daily activities after 2.8±0.7days, and those in the CH group after 21.1±2.7days (p<0.001). Complications occurred in a total of five patients within 30 days of surgery: three patients from the CH group suffered from urinary retention, one patient from the CH group from bleeding, and one from the HAL-RAR group from a thrombosed hemorrhoid. The appearance of skin tags (HAL-RAR 9 vs. CH 1, p=0.047) significantly differed between the groups. Neither the re-appearance of prolapse (3HAL-RAR vs. 0 CH patients) nor the recurrence of the symptoms bleeding (HAL-RAR 2 vs. 1 CH patients) or pain (HAL-RAR 0 vs. 1 CH patients) differed significantly between the two groups. *Conclusion:* HAL-RAR appears to cause less postoperative pain and results in better patient-satisfaction in the early postoperative period than closed hemorrhoidectomy. Doppler-guided hemorrhoidal artery ligation fulfills the requirements of minimally invasive surgery and appears to be ideal for 1-day surgery.

Key words: Hemorrhoids; Doppler-guided hemorrhoidal artery ligation; Transanal rectal mucopexy; Prolapse; Rectal bleeding.

INTRODUCTION

Today, hemorrhoidal disease (HD) is considered to be a typical disease of civilization or lifestyle, and some 70% of the working population is faced with this problem at some stage. In most cases, the severity of ailments depends on how advanced the disease is.[1] Therapeutic treatment of hemorrhoidal disease ranges from diet to medication. During the early stages of hemorrhoidal disease, good results can be achieved with infrared coagulation,[2] sclerotherapy, and rubber-band ligation.[3] Hemorrhoidectomy is the definitive treatment for grade III or IV hemorrhoids.[4] Standard methods include the open (Milligan-Morgan)[5] or closed (Ferguson)[6] hemorrhoidectomy, which are considered the gold standard for treating grade III-IV hemorrhoidal disease. However, these are usually associated with significant postoperative pain and a prolonged hospital stay. The majority of randomized clinical trials have demonstrated that the classical hemorrhoidectomy, including the Milligan-Morgan and Ferguson methods and their modifications, is accompanied by numerous complications. The most common complications are sphincter dysfunction (in up to 25% of patients) and pain severe enough to prevent 75% of patients from returning to work for up to 3 weeks following surgery. Other complications include postoperative urinary retention (2%-36%), bleeding (in 5-15% of patients), anal stenosis (0%-6%), infection (0.5%-5.5%), and incontinence (2%-12%). Furthermore, the risk of a recurrence of the disease can reach up to 30%.[7-15]

The majority of trials show that there is no difference in the duration of the rehabilitation process, irrespective of which technique is used for the hemorrhoidectomy. Much research over the last two decades has concentrated on reducing the pain after hemorrhoidectomy which results from the surgical incisions. Postoperative pain, slow convalescence and occasional long-term complications have encouraged the development of less invasive techniques.

At the end of the twentieth century, two technologies were developed as an alternative to standard hemorrhoidectomy. Stapled hemorrhoidopexy is a procedure first described by Longo in 1998,[16] which has rapidly emerged as a potentially less-painful alternative for treating hemorrhoidal disease. In randomized trials, stapled hemorrhoidopexy has shown a greater reduction of postoperative pain, a greater reduction in the length of hospital stay, and an earlier return to normal activity than excisional hemorrhoidectomy, but it is ineffective as a definitive cure for prolapse. Complication rates after stapled hemorrhoidopexy vary between 6% and 31%, and include such serious surgical complications as rectal anastomotic leakages with pelvic sepsis, rectal obstruction, perforation, recto–vaginal fistula, sphincter damage, retroperitoneal hematoma, and Fournier gangrene.[17-19] This technique requires the resection of rectal mucosa and therefore cannot be considered as minimally-invasive.

The HAL-RAR method is a new, minimally-invasive treatment option for high-grade hemorrhoids which combines in one procedure HAL (Hemorrhoidal Artery Ligation)[20] and a "lifting" of the hemorrhoidal prolapses, known as a mucopexy, described by Hussein[21] in 2001. This technique serves to treat the vascular factors with Doppler-guided suturing of the terminal branches of the hemorrhoidal arteries, and subsequently to treat the hemorrhoidal prolapses.

This present study compares the early and 1-year results of the traditional closed-scissors hemorrhoidectomy with those of the HAL-RAR operating technique.

PATIENTS AND METHODS

The present study is a randomized, clinical trial. The study was approved by the medical center's ethics' committee. Informed consent was obtained from every patient included in the trial. Neither sponsorship nor financial support of any kind was received for this study. The study in-

cludes adult patients only with symptomatic grade III or IV hemorrhoids. All patients were subjected to a detailed clinical examination prior to the procedure using rigid sigmoidoscopy and anoscopy for the diagnosis and staging of the disease. Any prolapse which could be reduced was classified as grade III hemorrhoidal disease. Permanently prolapsed anal cushion that prolapse immediately after replacement were classified as grade IV. Other underlying pathologies were excluded by barium enema or colonoscopy where necessary. Prior to surgery, a photograph was taken of the anal aspect of the patient. Exclusion criteria included concomitant anal disease (acute thrombosed hemorrhoids, fissure, abscess, fistula, incontinence, inflammatory bowel disease), previous anal surgery, ongoing treatment with oral anticoagulants, disease or hematological disorders. The patients were classified in category I-II of the ASA score (American Society of Anesthesiologists). Recruited patients were randomly allocated, by means of sealed envelopes, to one of the two study arms: (1) Doppler-guided Hemorrhoidal Artery Ligation and mucopexy (HAL-RAR) or (2) standardized closed-scissors hemorrhoidectomy (H). A single person performed all randomizations, which were done in blocks, so that the number of patients in the two groups was balanced over the course of the trial.

Preoperative preparation

Patients were prepared for surgery with an oral intake of fluids from midday before the procedure, and were given two “Microlax” enemas (Kabi Pharmacia AB) two hours before the procedure. One hour before the procedure, Emla ointment (Astra Zeneca, Sweden) was applied to the perineal region and intramuscular butorphanol tartrat (Stadol, Bristol-Myers Squibb) was applied. Prophylactic antibiotics were not routinely prescribed.

Operative technique

Closed hemorrhoidectomy or HAL-RAR was performed under general anesthetic as a day-case or short-stay procedure. General anesthesia was administered intravenously (1%-Propofol Fresenius, Kabi Deutschland GmbH) and the airway maintained using a laryngeal mask airway. To eliminate a surgeon-related bias, all procedures were performed by a single surgeon. All procedures were performed in the lithotomy position. After cleaning the perianal skin region and covering the patient with sterile draping around the perianal area, an ano-coccygeal ligament block of 5 ml bupivacaine 0.5 percent (Astra Zeneca, Sweden) was administered. A surgical proctoscope (BeaK; SapiMed, Alessandria), was placed in the anal canal, and the hemorrhoidal tissue was elevated with an injection of 0.5 percent bupivacaine with 1:200,000 adrenaline. The closed hemorrhoidectomy was carried out according to the Ferguson technique. The vascular pedicle was ligated with 2/0 polyglactin braided synthetic resorbable suture (A.M.I. HAL Suture) before excision. Three-quadrant hemorrhoidectomy was performed in each patient. Mucosa and anoderm reconstruction was carried out with a separate 2/0 suture. An anal tampon was not used.

All patients in the HAL-RAR group were treated with the same HAL Doppler equipment (A.M.I. HAL II Doppler System, A.M.I. GmbH, Feldkirch, Austria). The HAL-RAR procedure was performed in the lithotomy position. After relaxation of muscles and lubrication of the anal canal with electro-conductive gel, the RAR probe was inserted to start the search for the hemorrhoidal arteries by means of Doppler technology. The probe was gently rotated to localize the hemorrhoidal arteries. All arteries were ligated with a “double figure of eight” suture on each side. The ligations were performed with a suture especially made for this procedure (A.M.I. HAL Suture, 2/0 polyglactin, tapered needle, 5/8 circumference, reinforced needle-thread connection). Obliteration of the vessels was confirmed by the absence of any Doppler sounds distal to the sutures. The transanal mucopexy was carried out using the RAR probe (see Figure 1) in combination with the special RAR metal sleeve, by applying longitudinal continuous running sutures in 3-4 quadrants.

Figure 1. – A.M.I. RAR Probe.

Postoperative management

Food was allowed in the immediate postoperative period. For pain relief, dologesic was prescribed. Intramuscular Butorphanol tartrat (Stadol, Bristol-Myers Squibb) (1 mg/kg body weight) or ketorolac trometamin (30-60 mg) injections were given on demand. For stool softening, patients received Macrogol 4000 (Forlax, Beaufour Ipsen International) 10 gram 1-2 times a day for 3-4 weeks. Additionally, we prescribed «Detralex» (micronized purified flavonoid fraction-Daflon 500) for all patients 1000 mg/day orally for a period of 3 weeks. For the first 10 days, patients were advised to take anti-inflammatory suppositories. Discharge from hospital was only authorised if the following strict criteria were met: (1) the patients were fully ambulatory; (2) «Butorphanol tartrat » injection was no longer required; and (3) the patients did not complain of bleeding or urinary retention. Patients were advised not to subject themselves to any physical strain for another 3 weeks.

Measured outcomes

Operative data and postoperative complications were recorded. Postoperative hemorrhage was defined as: (1) when the bleeding required surgical intervention, or (2) when hospital readmission was required. A 100-mm visual analog scale (VAS) - from 0 (no pain) to 100 (the worst pain imaginable) - was used to evaluate the intensity of pain postoperatively. The patient was instructed to score pain according to this. The first pain score was made three hours after the effect of the intravenous anesthesia had worn off. Thereafter, the pain score was made on a daily basis from the first to the seventh postoperative day, and a mean pain score was calculated. This score thus took into account the intensity and duration of pain. Because the time of maximal pain perceived by different patients might be quite different, a mean pain score is a better reflection of the pain experienced in the first postoperative week. The number of intramuscular «Butorphanol tartrat» and «ketorolac trometamin» injections given during hospitalization, and the total number of dologesic tablets (Ketorolac) taken by the pa-

tient during and after hospital discharge, were recorded. Other information, including the first bowel movement after surgery and the time it took to return to work, was also recorded.

Results of long-term follow-up were evaluated by means of a standardized questionnaire before and then again one year after surgery. The following signs and symptoms were evaluated: prolapse, bleeding, itching, tenesmus, urgency, and continence. Tenesmus was defined as a sensation of incomplete evacuation of feces. Urgency was defined as the inability to control the defecatory reflex; that is, bowel movements cannot be prevented because of a strong desire to defecate. Prolapse was assessed by the physician according to his observation. Continence was scored on a scale of 1 to 20 according to the incontinence score system of Jorge and Wexner.[22] All data were recorded by an independent observer, who was unaware of the operation performed. Outpatient follow-up was made at 2 weeks, 1, 6, 8 and 12 months after the procedure.

Statistical analysis

Data is expressed as either mean and standard deviation, or median and range. Categoric variables were analyzed with the chi-squared or Fisher's exact test, and numeric (continuous or parametric) variables were analyzed by use of Student's t-test or Mann-Whitney U test, as appropriate. The statistical analysis was made with the program SPSS® (Windows version 11.0; SPSS Inc., Chicago, IL).

RESULTS

Between December 2006 and December 2007, we registered one hundred and thirty-five patients with grade III-IV hemorrhoids. The average period of supervision was 15 (6-24) months. No patient was lost to follow-up research. The two groups were comparable in terms of age and gender distribution. There was no significant difference between the groups in admission status, type of anesthesia or grade of hemorrhoids. There were no statistically significant distinctions between the duration or type of clinical symptoms. The characteristics of the patients included in the study are presented in Table 1.

TABLE 1. – Basic patient characteristics.

Characteristic	HAL-RAR n=65	CH n=70	P Value
Age (years), mean and range	43 (28-63)	45(27-67)	0.511[a]
Gender (M:F)	54/11	59/11	0.849 b
Grade (III:IV)	41/24	39/31	0.383[b]
GA	65	70	NS
Symptoms of hemorrhoids			
Prolapse	65	70	0.473
Bleeding	65	70	0.908
Pain	43	48	0.554
Itching	1	5	0.210
Tenesmus	0	0	NS[c]
Incontinence	(0-3)1.06±1.3	(0-4)1.10±1.32	0.868[a]

HAL-RAR: Doppler-guided Hemorrhoidal Artery Ligation and Recto Anal Repair
CH: Closed Hemorrhoidectomy; GA: General Anesthesia
[a]Mann-Whitney *U* test
[b]Fisher's exact test
[c]Chi-squared test

Comparing the two groups, there was no significant difference observed between the operating times and no difference between the times of the first bowel movement after surgery (Table 2).

TABLE 2. – Clinical results after surgery.

Characteristic	HAL-RAR n=65	CH n=70	P Value
Operation time[a]	36.18±2.3	35.5±3.1	0.512[c]
«Stadol» injection (n)[b]	1 (0-1)	2 (0-4)	0.001
etarolac trometamin injection (n)[b]	2 (1-3)	4 (2-4)	0.001
First bowel movement (days after surgery)[b]	2 (1-2)	2 (1-3)	0.015
Hospital stay (hours)[a]	18.3±3.5 (12-24)	62.0±12.4 (36-72)	0.001[c]
Return to work (number of days after surgery)[a]	2.8 (2-4)	21.1 (12-27)	0.001[d]

[a] Values are mean (standard deviation);
[b] Values are median
[c] Mann-Whitney U test
[d] Student's *t*-test

Preoperative pain experienced by the patients was similar for the two groups. Postoperative pain was significantly lower in the HAL-RAR group on each postoperative day (1-10) (p = 0.002 Mann-Whitney *U* test) (Figure 2).

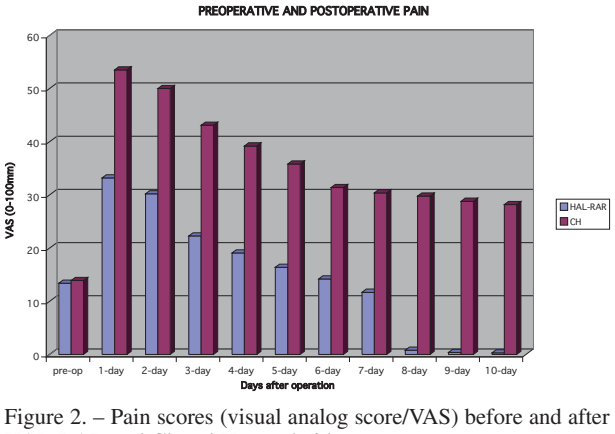

Figure 2. – Pain scores (visual analog score/VAS) before and after HAL-RAR and Closed Hemorrhoidectomy.

Preoperative pain was similar for the two groups. HAL-RAR patients experienced significantly less pain than closed hemorrhoidectomy on all postoperative days (p < 0.001 Mann-Whitney *U* test). The number of analgesics required was lower in the HAL-RAR group (p=0,001 Mann-Whitney *U* test) for days 1 - 6. From the seventh day onwards, none of the patients in the HAL-RAR group required analgesics (Figure 3).

In the CH group, all patients required analgesics during the 10 days following the operation. In the HAL-RAR group during the first two postoperative days, 63 (96.9%) and 62 (95.4%) patients respectively required analgesics. From the third postoperative day onwards, the number of patients requiring analgesics in this group decreased markedly, with 21 (33.8%) and 13 (20%) requiring analgesics on the third and fourth post-operative day respective-

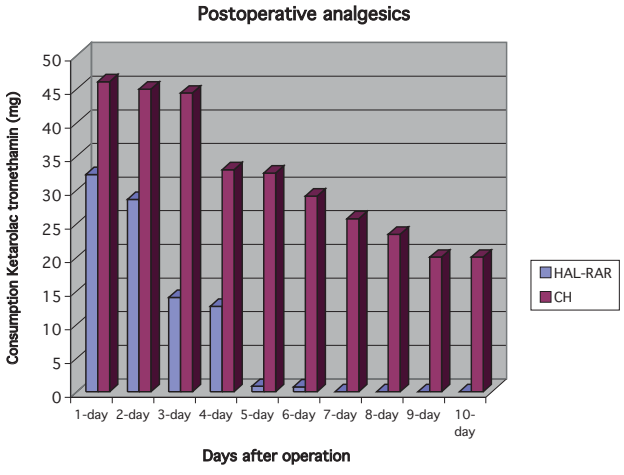

Figure 3. – Patients requiring analgesics after HAL-RAR and CH surgery.

ly. No patients required analgesics from the seventh postoperative day onwards (Figure 4).

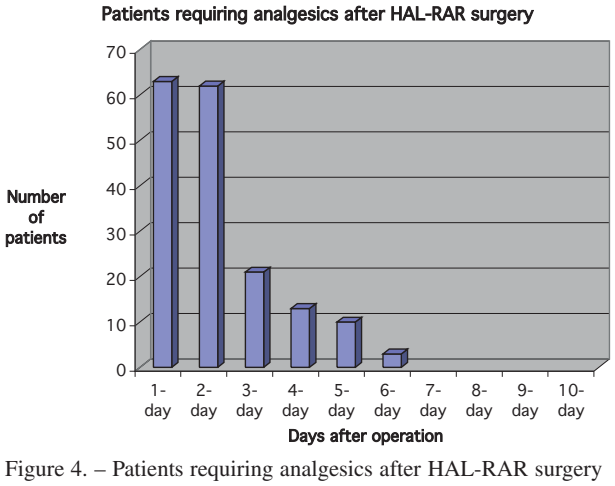

Figure 4. – Patients requiring analgesics after HAL-RAR surgery

Patients, who underwent the HAL-RAR procedure, also had a shorter hospital stay (p = 0.01) and resumed work on average sooner than patients in the CH group (2.8 vs. 21,1; p = 0.001).

Overall, a total of thirteen patients developed complications, with three of those patients belonging to the HAL-RAR group and 10 belonging to the CH group (Table 3).

TABLE 3. – Postoperative complications.

Type of Complication	HAL-RAR n=65	CH n=70	P
Bleeding	0	1 (1.4)	0.321[a]
Thrombosis of external hemorrhoids	1 (1.5)	0	0.321[a]
Fever	2 (3.1)	6 (8.6)	0.109[a]
Urinary retention	0	3 (4.3)	0.083[a]
Without complication	62 (95.4)	68 (85.7)	0.052

[a] Pearson Chi-Square

In the CH group, three patients developed transient urinary retention. One patient developed postoperative hemorrhaging, stopped by anoscopy and the submucous injection of bupivacaine with adrenaline 1:200,000. One patient in the HAL-RAR group suffered from thrombosed hemorrhoids. This complication was resolved conservatively with local therapy. Three patients from the HAL-RAR group and six patients from the CH group suffered hyperthermia. The hyperthermia was probably connected to an operational trauma, and subsequently passed without requiring treatment with antibiotics.

Resolution of hemorrhoidal symptoms after 1 year

Incidental bleeding of no significance was reported for 2 of 65 patients in the HAL-RAR group (3.1 %) and for 1 patient of 70 (1.4 %) in the CH group (p = 0.472). During clinical inspection and anoscopy, minor prolapses were revealed in 3 of the 65 patients (4.6%) in the HAL-RAR group. These required two sessions of sclerotherapy for liquidation of symptoms. In the CH group, there were no prolapses evident (p = 0.109). Input from patients and the clinical survey showed that 6 (9.2%) patients in the HAL-RAR group and 1 (1.4%) in the CH-group (p = 0.047) developed skin tags that were subsequently removed under local anesthesia. The periodic occurrence of pain after defecation was noted in 1 patient from the CH group (p=0.519), causing cryptitis and demanding local conservative therapy. There was no difference noted in the incontinence scores. None of our patients scored higher than 2 points (Jorge-Wexner) either before or after treatment. Patients evaluated the surgical result after the HAL-RAR procedure as excellent in 54 cases (83.1%) and good in 11 cases (16.9 percent), and excellent in 67 cases (95.7 percent) and good in 3 cases (4.9 percent) after closed hemorrhoidectomy.

TABLE 4. – Clinical results one year after operation.

Symptoms of hemorrhoids	HAL-RAR n=65	CH n=70	P (Fisher's Exact Probability Test)
Bleeding	2 (3.1)	1 (1.4)	0.472
Prolapse	3 (4.6)	0	0.109
Pain	0	1 (1.4)	0.519
Skin tags	6 (9.2)	1 (1.4)	0.047
Tenesmus	0	0	NS
Itching	0	0	NS

DISCUSSION

Introduced into surgical practice in 1937 and theoretically substantiated, the Milligan and rgan method [5] for hemorrhoidal treatment remains the principal method of treatment for patients with hemorrhoids of grade III-IV, [23,24] because minimally-invasive methods of treatment are considered to achieve inferior results. [25,26] The majority of randomized prospective studies comparing open and closed hemorrhoidectomy shows no difference in pain, analgesic use, hospital stay or complications. [27,28]

Recently, the harmonic scalpel and bipolar diathermy LigaSure have been widely used in the surgical treatment of hemorrhoids. The majority of randomized research has shown that both the duration of surgery and the blood loss decrease when compared to electrocautery hemorrhoidectomy, but there is no effective reduction of pain.[29-32]

The key issue in all hemorrhoidectomy operations has always been postoperative pain, because pain is still the most common reason for patients to refuse surgery. The hemorrhoidectomy predisposes patients to pain relating to damaged perianal skin and sensitive anoderm, and some pa-

tients decide against surgery in anticipation of this pain. The stapled hemorrhoidopexy, a procedure first described by Longo in 1998,[16] has rapidly emerged as a potentially less painful alternative for treating hemorrhoidal disease. In randomized trials, the technology of the stapled transanal mucosectomy has been shown to achieve a greater reduction of postoperative pain and an earlier return to normal activity than standard hemorrhoidectomy. However, it may result in severe complications such as persistent postoperative pain, perforation, pelvic and retroperitoneal sepsis, rectal perforation, and rectovaginal and urethral fistulas, [17] and therefore cannot be considered as minimally-invasive.

The new, minimally-invasive treatment option for high-grade hemorrhoids, HAL-RAR, which combines HAL (Hemorrhoidal Artery Ligation) [20] and a mucopexy ("lifting") of the hemorrhoidal prolapse in one procedure, promises the patient relatively low pain levels. The HAL-RAR technique is based on two parallel concepts that explain the development of hemorrhoidal diseases: an increased arterial supply to the arterial branches of the SRA in the CCR [20] and the increased laxity of the rectal mucosa .[16,17] The combination of ligation and mucopexy resolves both of these issues. Our results showed that patients having undergone the HAL-RAR procedure not only suffer from less postoperative pain, but also from fewer complications. In addition, they remain in hospital for a shorter time and return to their normal daily activity much faster than those patients having undergone a closed hemorrhoidectomy. This is not surprising, because there is no wound remaining after the operation and the procedure does not damage the perianal skin or the sensitive anoderm. Therefore reduced postoperative pain and speedier recovery can be expected. Furthermore, results of our study show no patients in the HAL-RAR group displaying complications such as urinary retention, compared to 3 cases after hemorrhoidectomy (4.3%). The total number of complications in the investigated groups (HAL-RAR and CH) is not statistically significant. From the various hemorrhoid treatments, we have therefore chosen to apply HAL-RAR, the method which does not lead to potentially fatal complications.

Another aim of this study was to assess the effectiveness of the HAL-RAR procedure as a definitive cure for hemorrhoids. The long-term results of the operation were evaluated by use of a standard questionnaire and proctological examination in the clinic. The questionnaire included questions concerning the symptoms of hemorrhoidal disease, including pain, bleeding, prolapse, skin tags, incontinence and hygienic problems, as experienced by the patient at that time. On the basis of that questionnaire and clinical examination, the basic symptoms of the disease - bleeding and prolapse - were eliminated in 96.9% and 95.4% of the HAL-RAR group respectively.

Of this group 83.1% confirmed that they were no longer experiencing any bleeding, prolapse or pain during defecation; 16.9% of the patients contacted reported recurrent hemorrhoidal disease, although a subsequent proctological diagnosis of these patients' problems revealed that 9.2% of these patients considered skin tags remaining after HAL-RAR to be prolapsing piles. These skin tags were removed under local anesthesia. The presence of transmural branches of the SRA,[33] which were not detected by means of an external hemorrhoid complex (skin tags) in the HAL-RAR group (1 patient (1.4%) in the CH group). The use of neither procedure for the treatment of grade III - IV hemorrhoids influenced the development of fecal incontinence.

Both the closed hemorrhoidectomy and the HAL-RAR procedure proved effective in treating hemorrhoids in the short and long term. The one-year results of the HAL-RAR procedure do not differ from those of the closed hemorrhoidectomy. Resolution of hemorrhoidal symptoms was achieved in 54 patients (83.1%) following the HAL-RAR procedure, and in 67 patients (95.7%) following closed hemorrhoidectomy.

The technology of HAL-RAR is based on a modern representation of the development of hemorrhoidal disease. HAL-RAR achieves an immediate reduction of the vascular component, coupled with repositioning and anchoring of any distally-displaced hemorrhoidal tissue. We believe that HAL-RAR is a painless, minimally-invasive therapeutic technique that offers a good alternative to hemorrhoidectomy for treatments of symptomatic grade III-IV hemorrhoids. However, we understand that the given technique can not remove external hemorrhoidal scar tissue. Therefore the technique can be combined with the simultaneous removal of external hemorrhoidal scar tissue. This combination will reduce the rehabilitation period considerably, as well as lessening the risk of complications developing. Results obtained from our use of the HAL-RAR technology on patients with grade III-IV hemorrhoids have formed the basis for a change in our treatment strategy. Since 2007 we have discontinued the use of standard hemorrhoidectomy for treatment of patients with Grade III-IV hemorrhoids. The HAL-RAR procedure is carried out irrespective of the character of changes to an external component, and is supplemented if necessary by the simultaneous removal of any external hemorrhoidal scar tissue.

CONCLUSION

The present study shows HAL-RAR is a safe and effective procedure for patients suffering from grade III-IV hemorrhoidal disease. Patients undergoing HAL-RAR derive greater short-term benefits, while being subject to less pain and a much lower risk of severe complications. Furthermore, they are hospitalized for a shorter length of time and may return to work earlier. However, this is a relatively new procedure, and most of the published data relates to short-term follow-up only. Long-term follow-up is now necessary to determine whether these initial results are lasting. Nevertheless we believe the procedure offers significant advantages to patients, and have therefore established HAL-RAR as the procedure of choice for all patients suffering from grade III-IV hemorrhoids in our clinic.

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Case report

Case report-hypothesis: a congenitally lax pubourethral ligament may be a contributing cause of vesico-ureteric reflux

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Abstract: *Background:* The hypothesis derives from the field of female stress incontinence. Application of pressure on the anterior vaginal wall at midurethra with a hemostat restores the geometry of the vesicourethral junction and continence. *Methods:* We applied unilateral midurethral pressure during a radiological investigation of a 15 year old patient who had undergone 2 surgeries for ureteric reflux. *Results*: On injection of the dye into the bladder, reflux was noted in the left ureter, and this disappeared within 2-3 seconds after pressure was applied on 2 successive occasions in the midurethral area of the vagina. *Conclusion:* The hypothesis that a musculoelastic mechanism dependent on a competent pubourethral ligament may play a role in vesicoureteral valvular closure, appears to have been confirmed, at least in one case. Hopefully this observation will lead to further studies, and perhaps, new directions for therapy.

Key words: Vesicoureteric reflux; Musculo-elastic closure; Ureterovesical junction; Pubourethral ligament; Integral Theory.

INTRODUCTION

There have been no new hypotheses for causation of vesico-ureteric reflux for many years. The aim of this report is to present a new hypothesis, deriving from the field of female stress incontinence. In females with stress urinary incontinence, application of pressure on the anterior vaginal wall at midurethra with a hemostat restores the funnelled geometry of the vesicourethral junction to normal, and continence.[1] The mechanism for this is based on a competent pubourethral ligament acting as a firm anchoring point for the three directional muscle forces which activate distal and proximal urethral closure (figure1). Based on a report on improvement of vesico-ureteric reflux in an adult female following a midurethral sling,[2] it was hypothesized that a similar mechanism may act to prevent vesico-ureteric reflux (Figure 1). The ureters traverse the bladder wall to the trigone; the muscle forces (arrows) stretch the trigone backwards and downwards around a competent pubourethral ligament (PUL) to close off the proximal urethra, and ureterovesical junction.

We report on a serendipitous testing of this hypothesis.

CASE REPORT

A 15 year old young woman presented with a long history of vesicoureteric reflux and chronic cystitis, treated with prophylactic antibiotic therapy. Symptoms during remission included, urgency abnormal bladder emptying, with residual urine volumes of up to 60 ml. A duplex system on the right side was corrected with an extravesical cystoneostomy (Gregoir-Lich). Because of continuing reflux, she had a 2nd operation of the right ureter duplex (Politano-Leadbetter).

The immediate reason for this admission was to exclude an upper renal calyceal bacterial focus for a pyrexia not apparently due to bladder infection. Renal ultrasound indicated dilated right upper calyces, but no evidence of obstruction. Renal scitillography showed apparently decreased function in that area.

The management plan was to insert a ureteric catheter into the upper right renal calyx, and to take a sample of urine for bacterial culture and sensitivity. Radioopaque dye (250 ml) was injected into the bladder to guide the catheter. The test was applied as described previously.[1]

RESULTS

There was no reflux observed into the right double system, but ureteric reflux was seen on the left side (figure 2). On cystoscopy, the urethra was normal, with no mechanical obstruction evident at the meatus, or anywhere along its length. Large complex trabeculae were seen in the bladder wall. The left orifice was "horseshoe" in shape, according to the classification of Lyon,[3] and laterally displaced. When the forceps was unilaterally applied retropubically at midurethra, (figure 1), within 2-3 seconds the reflux had disappeared, as documented fluoroscopically, (figures 2-3). This was repeated on a 2nd occasion with the same results.

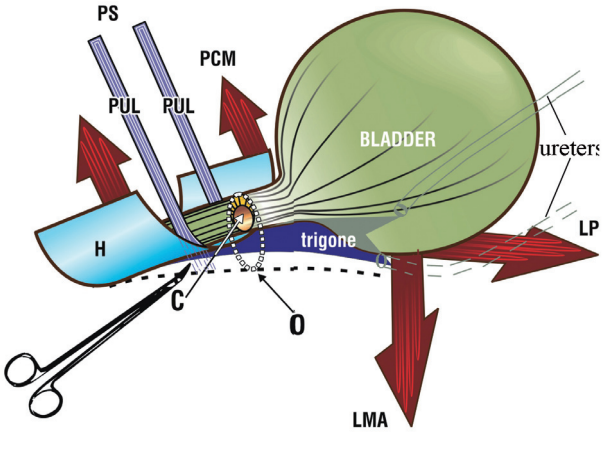

Figure 1. – A hypothesis for an adjunctive role of pelvic muscle forces in ureterovesical closure.
The 3 directional muscle forces (arrows), PCM (m. pubococcygeus), LP (levator plate) and LMA (longitudinal muscle of the anus), stretch the hammock (H) forwards, and the trigone backwards/downwards to activate distal and proximal urethral closure.[1] It is hypothesized that this same action stretches the trigone and bladder base to assist closure of the ureterovesical junction. Pubourethral ligament (PUL) laxity inactivates these muscle forces, diminishing the backward stretching of the trigone, loosening the connective tissue/muscular junction sufficiently to cause vesicoureteric reflux. The forceps indicates point of upward pressure applied during the procedure, immediately behind symphysis pubis, at midurethra. In the stress incontinent patient, this action restores the urethral diameter from open (O) to closed (C).

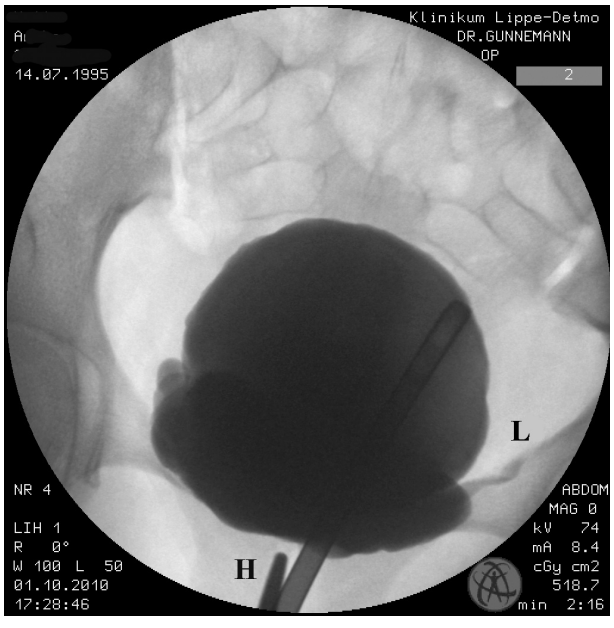

Figure 2. – Radiopaque dye injected into the bladder flows into the left ureter 'L'. The hemostat H is inserted, but no pressure has yet been exerted.

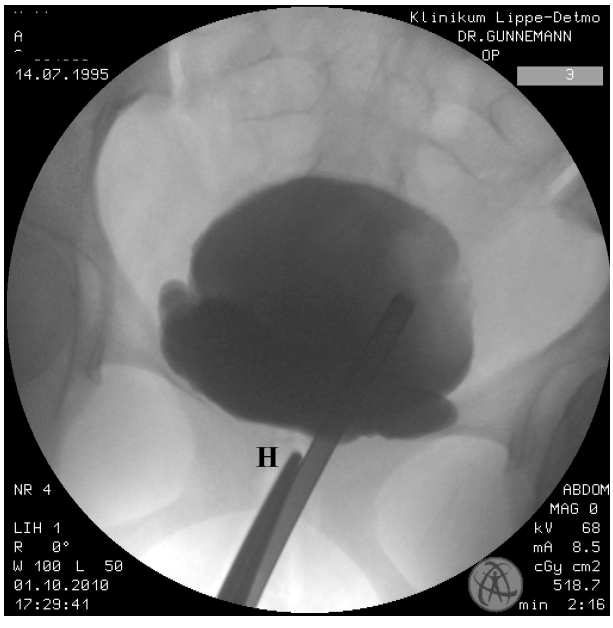

Figure 3. – Upward pressure on the anterior vaginal wall in the region of midurethra by a hemostat (H) prevents reflux.

DISCUSSION

According to a recent review,[4] primary vesicoureteral reflux is the outcome of a congenital abnormality of the ureterovesical junction. Our hypothesis is that a lax pubourethral ligament (PUL) may be the ultimate cause not only of reflux, but also of urge and stress symptoms in childhood. We have seen many adult women and other family members with such childhood symptoms cured/improved at puberty. We attribute this to strengthening of the collagen component of the PUL by estrogen/testosterone. Those females who continue with problems into adulthood, respond well to a midurethral sling, which works by reinforcing the PUL.[2,5,6] As patients with ureterovesical reflux also improve at puberty, we hypothesized that the same musculoelastic mechanism for urethral closure,[1] may also rely on a competent pubourethral ligament, 'PUL' (figure 1). According to a recent review,[4] primary vesicoureteral reflux is the outcome of a congenital abnormality of the ureterovesical junction. Patients with ureterovesical reflux also improve at puberty. Based on our analysis of the biomechanics of all the structures in figure 1, vagina, muscle forces, ureters, urethra, we concluded that the same musculoelastic mechanism which activates urethral closure,[1] may also close the ureterovesical junction. This closure mechanism relies entirely on a competent pubourethral ligament.

Clearly a midurethral sling is not appropriate for very young females. Excellent results have been achieved for urinary symptoms by encouraging squatting, and using a large rubber 'fitball' instead of a chair to strengthen the pelvic muscles and their ligamentous insertions.[7] If this does not help, a midurethral sling[6] can be performed at an appropriate time when the patient is older.[2] A midurethral sling is far less invasive, and does not alter the anatomy as do the ureteral transplantation operations.

CONCLUSION

The hypothesis that a musculoelastic mechanism dependent on a competent pubourethral ligament may play a role in vesicoureteral valvular closure, appears to have been confirmed, at least in one case. Hopefully this observation will lead to further studies, and perhaps, new directions for therapy.

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Short Abstracts

(key words underlined) **(Full abstracts at page 119)**

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Simultaneous surgical treatment of Pelvic Organ Prolapse with uterine leiomyoma: TFS minisling with laparoscopic myomectomy. HIROMI INOUE (*Kamakura, Japan*)

In the last decades requests for POP surgical correction have been increasing. Hysterectomy for leiomyoma induces a future risk of POP. Myomectomy instead of hysterectomy allows to conserve the 45° vaginal angle and the TFS tape allows to tighten normal pelvic tension and function. Simultaneous laparoscopic myomectomy and TFS surgery for POP with a fibroid represent a good option for all patients with POP and uterus leiomyoma to avoid hysterectomy.

If it bleeds we can kill it. BEVAN BROWN (*Sydney, Australia*)

Fibroids are a common cause of pelvic symptomatology. Hysterectomy is often used to manage patients with a symptomatic fibroid uterus. Uterine artery embolisation is a safe and highly effective method for treatment of women with symptomatic fibroids and adenomyosis. This approach permits preservation of pelvic structures, facilitating prolapse repair.

Laparoscopic rectopexy update. IAIN SKINNER (*Melbourne, Australia*)

Laparoscopic technique for rectal prolapse repair evolved in the early '90. Today it meets both anatomical and functional indication; the former includes a complete external rectal prolapse while the latter includes rectal intussusception, obstructed defecation and/or constipation, fecal incontinence and symptomatic rectocele. Ventral laparoscopic rectopexy seems to be efficacious for complete external rectal prolapse, while its role remains uncertain for rectocele, fecal incontinence, obstructed defecation or intussusception.

Designer vaginas in the context of the sexual revolution. BERNIE BRENNER (*Auckland, New Zealand*)

This presentation attempts to explain the relatively new phenomenon of cosmetic vaginal surgery. It reviews the history of feminism and the development of the sexual revolution in academic research, the lay literature through magazines and film and television. The types of cosmetic surgery are addressed.

Sacral neuromodulation in urology. GERARD TESTA (*Sydney, Australia*)

Sacral nerve stimulation (SNS) is an electric therapy based on a fully implantable system that delivers mild electrical impulses to sacral nerves influencing bladder, bowels, sphincters and pelvic floor muscles. Actual indications for Interstim therapy includes UI, OAB, constipation, fecal incontinence and pelvic pain both in male and female patients. Usually the definitive implant is preceded by a PNE test. Good results have been demonstrated at least in 50% of patients at short and mid term while long term results are uncertain.

Modern management of haemorrhoids. DARREN GOLD (*Sydney, Australia*)

Hemorrhoids are very common and symptoms include bleeding, pain and prolapse divided into 4 degrees. Outpatient techniques are based on sclerotherapy or rubber-band ligation. Although the most known procedure remains Milligan Morgan hemorrhoidectomy, in the recent past other notsurgical techniques have been performed. Stapled hemorrhoidopexy was firstly introduced by Longo in '90s. Recently doppler-guided hemorrhoidal artery ligation (HAL) has gained more and more favor as it allows minimal postoperative pain, early return to work and minimal complication rate.

Bladder pain- New perspectives. MAREK JANTOS (*Adelaide, Australia*)

Chronic pelvic pain (CPP) represents an increasing cause for medical visits but in 61% causes are unknown. Female patients make up 95% of these visits. Bladder is a common and important source for this kind of pain but its diagnosis is often based on exclusion criteria. Pelvic floor myofascial trigger points are not only source of pain but also a stimulation for neurogenic bladder via antidromic reflexes. Therapy includes not only medications: normalization of muscle function, postural correction, behavioral management of bladder and bowel function and anxiety management brought good results as well.

CR Mesh repair for posterior compartment prolapse. GIUSEPPE DODI (*Padova, Italy*)

The results of CR-Mesh repair in the treatment of Pelvic Organ Prolapses is satisfactory at middle and long term follow up. Complications are few and without consequences, the results in vaginal function are good. The correction of complete rectal prolapse and intussusception is possible only when the mesh blocks the bowel descent starting low enough in the pelvis. This study is a further demonstration that constipation depends on other causes than merely the posterior compartment prolapse when present.An open question remains the need for an overtreatment to prevent prolapses in the untreated compartment. Full abstract pag. 119.

Prolapse in Nepal. ANDREW BOOKER (*Sydney, Australia*)

According to WHOand UNFPA report, in Nepal 600.000 women are affected by POP and 200.000 require immediate treatment. Age rate is between 45 and 49 yrs old in 24% with a prevalence of more than 10%. Risk factors includes heavy workloads, early age at 1st birth, number and short birth intervals, malnutrition and unsafe termination of pregnancy. The project SAH Healthcare Outreach purpose is to give assessment, transportation, accommodation, surgery and convalescence to all women unable to access care due to poverty.

Urinary QOL after tensioned TFS minisling 1 year results. YUKI SEKIGUCHI (*Yokohama, Japan*)

A series of 54 patients were reviewed 1 year after a TFS minisling procedure for prolapse and urinary incontinence. A good objective success rate and improved urinary QoL confirm the efficacy and safety of this day surgery procedure for prolapse. Full abstract pag. 120.

Procedure selection in pelvic organ prolapse surgery, Science, art or luck of the draw. DAVID SHAKER (*Rockhampton, Australia*)

The decision of the pelvic surgeon to select certain procedures for treatment of uterovaginal prolapse is based on the evaluation of the prevalence of different defects, their impact, and the impact of the procedures as well on the other compartments, the meaning of the cervix, the experience with the failures, and the configuration ofthe meshes. Full abstract pag. 120.

The language of operative surgery. JOHN CARTMILL (*Macquarie University, Sydney, Australia*)

Classical (idealized) and actual examples of the operation "anterior resection of the rectum" are compared. The density of communication (verbal and non verbal) involved in mediating an episode of surgery are made explicit.

Surgery in the long term management of obstetric injury. TONY EYERS (*Macquarie University, Sydney, Australia*)

Colorectal surgeons are often asked to perform delayed repairs following obstetric sphincter injuries and close associated rectovaginal fistulas. Good results are usually obtained after the repair, but the function gradually deteriorates over a ten-year period, pudendal neuropathy being an additional factor. With sacral neuromodulation the results appear equivalent with an anatomical sphincter injury or not.Therefore surgical repair should be done whith a frank anal sphincter injury, but not repeated when the functional result deteriorates, preferring SNS. Full abstract pag. 121.

The Hospital by the River (Ethiopian fistula Hospital Update). GARY SYKES (*Sydney, Australia*)

According to WHO reports, 6,000 new obstetric fistula cases are estimated each year in Ethiopia. The Addis Abeba Fistula Hospital treats about 1000 women with fistulae each year without charge. Support services include urodynamic, radiology and ultrasonography, biochemistry, haematology, blood transfusion, microbiology, counselling and chaplaincy, literacy education, maternal health and women rights education and physiotherapy. Considering the 2010 outcome analysis, in 93% of patients the repair was successful while in 24% repair was successful but patients remained incontinent. The future target is obstetric fistula prevention.

Coital incontinence, female ejaculation and the G Spot revisited. BERNIE BRENNER (*Auckland, New Zealand*)

An overview in literature demonstrates two possible different origins: urinary and non urinary. If we accept that female ejaculation comes from non urinary origin we have to conclude that it's made up of pooled vaginal fluids. On the contrary, the urinary origin considers stress urinary incontinence and detrusor contraction. Skene's glands in female are analogous to male prostate. Moreover vaginal transudate may pool in the posterior fornix and be expressed at the orgasm. If urinary origin instead is admitted, urinary loss during sexual activity is common and is multi-factorial (23-34%). Ejaculation during orgasm may be pooled vagina secretion contaminated by Skene's fluid. However also urinary loss remains common during female orgasm. The G Spot is discussed.

Experience with Elevate mesh. MALCOLM FRAZER (*Gold Coast, Australia*)

Normal pelvic support is made up of 3 levels: apical (I), transverse (II) and perineal body (III). The elevate mesh is a system that include 4 fixation points (internal obturator muscle and sacrospinal ligaments) and that needs just one single anterior access but providing both anterior and apical support. According to recent FDA statement with vaginal mesh reclassification in class 3, mesh use should be almost always used in anterior wall prolapse although sacrocolpopexy is still considered the gold standard.

Management of post sling obstruction. VINCENT TSE *(Sydney, Australia*)

SUI is reported to be treated successfully with mid urethral sling in 80% of cases at 10 yrs FU. Anyway complications such as obstruction, de novo OAB, vessels and nerves injury and mesh erosion is described too. In case of obstruction an excessive urethral compress, a reduced Qmax, detrusor hypocontractility may represent risk factors. History, abdominal and vaginal examination, flowmetry and PVR are essentials tools for diagnosis but urodynamics and translabial US may be necessary too. Surgical treatment options include sling loosening, division and/or excision of sub-urethral segment and urethrolysis with Martius fat interposition graft. Anyway few protocols agree in timing of intervention. Full abstract pag. 121.

The next layer of anatomy. JOHN CARTMILL (*Macquarie University, Sydney, Australia*)

Surgery and anatomy have been inextricably linked through the millennia; advances in one supporting and enabling advances in the other. The traditional anatomy of internal corporeal relationships is now lagging behind the technical and intellectual advances that are occurring at the surgical interface. A new field of transactional (or penumbral) anatomy is in evolution; an anatomy mediated by information technology, engineering and the surgeon's imagination. An anatomy as essential and appropriate to its time as that of Galen, Vesalius and Harvey.

Do men know what women want? Philip Katelaris (*Sydney, Australia*)

Do men know what women really want or they just wish to know what they want in fact? Sex relationships are a continuum of banding behaviors, implying communication at every level: intimacy, sensuality and sexuality. No good sex can exists without communication. Maybe men not always know what women want…because even women themselves don't know what they want too.

Technical aspects of Pelvic Surgery. Richard Reid (*Sydney, Australia*)

The weakest point of pelvic floor is represented by levator hiatus and pelvic organs are suspended to axial skeleton by fibroelastic tissue. Delivery and hard labor damage muscles and pelvic fascia. The choice of biomaterial for pelvic defect repair should reflect the primary surgical objective. Polypropylene mesh provides high tensile strength but they are not suitable to be used near hollow organs because of their chronic inflammatory properties. Trocar mesh kits may be alternative to SCPx. What appears clear is that morbidity due to biomaterials implantation varies depending to the implantation site. In conclusion MUS are more effective and less morbid than the procedure they replaced but abdominal SCPx is still the gold standard for DeLancey level I prolapse.

Using Imaging to understand how slings work. Lewis Chan (*Sydney, Australia*)

Transperineal ultrasound is a good modality of imaging for demonstration of synthetic suburethral slings. Dynamic compression of the urethra by transobturator sling was demonstrated during Valsalva in patients with AdVance and Monarc slings suggesting that these slings may have a similar mechanism of action in restoring urinary continence in male and female patients with stress urinary incontinence. Full abstract pag. 121.

Minislings fashion or fabulous. Malcolm Frazer (*Gold-Coast, Australia*)

The evolution of surgery for urinary incontinence is presented: Kelly, Burch, antologous sling procedures...

Role of Injectables in managing urinary incontinence. Jenny King (*Sydney, Australia*)

Preparations of injectables available in Australia: Contigen (bovine). Macroplastique silicone, Durosphere carbon coated zirconium oxide, Bulkamid. Not an alternative to mid urethral slings for stress incontinence with significant sphincter deficiency and lack of motility especially when previous surgery; combination therapy for impaired compliance, voiding dysfunction.

Urogynaecology in Indonesia: the change and the challenge. Budi Iman Santoso *(Djakarta, Indonesia*)

Indonesia is a large nation of 240 million people living on over 17000 islands. Despite considerable improvements in women's health great challenges remain to provide urogynecological services, as Indonesia strives to join the developed world. A rapid breakthrough in a very short period of time in the field of urogynecology is anyway expected. Full abstract pag. 122.

The pelvic floor reconstruction using CR Mesh: past, present and future. Emanuela Mistrangelo (*Ginteam, Turin, Italy)*

Since 2009 for pelvic prolapse stage POP-Q III-IV 312 pelvic floor reconstruction (PFR) have been performed using in 88 patients the A.M.I. CR-mesh. Complications*:* in 21 cases urinary retention resolved with indwelling catheter for 1 week, 6 hematomas spontaneously resolved in one month, in 37 perineal and lumbar-sacral pain (VAS > 6) resolved after 10-15 days, 18 difficult defecation resolved in 2 months with diet, 11 stress urinary incontinence de novo, 6 resolved in 6 months with rehabilitation, 5 whith TOT urethral suspension 6-9 months after the PFR. 61/88 patients had 1 year FU: none had recurrence of the prolapse > stage I; no mesh exposure was observed; 9 patients had deep dyspareunia. These results are considered excellent, however the technique is quite invasive due to the multiple passage of trocars, and causes dyspareunia associated to fibrosis and retraction. Full abstract pag. 122.

Role of physiotherapy in managing pelvic and perineal pain. Sherin Jarvis (*Sydney, Australia*)

Physiotherapy manages pelvic and perineal pain disorders. All pelvic disorders and chronic pelvic pain (CPP) recognize a common theme: pelvic floor muscles (PFM) overactivity. PFM overactivity can be a primary cause of CPP or organ pathology or a second pain generator in response to CPP or pelvic organ pathology. Through a down-training program "contract-hold-relax" it's possible to regulate PFM overactivity. Biofeedback via manometry or EMG helps to modulate down-training. Also MFTP therapy had been reported to be successful in urgency-frequency syndrome.

The surgical anatomy of stress and non-stress non-urge urinary incontinence. Peter Petros (*Sydney, Australia*)

The female urethra is closed by two distinct closure mechanisms, proximal ("bladder neck") and distal.

The anterior portion of pubococcygeus muscle stretches the suburethral vagina ("hammock") between pubourethral ligament PUL and the external urethral ligament (EUL) to close the urethra from behind. A lax EUL may lead to non-stress urine loss in patients who have been cured of USI. A diagnostic symptom is a "bubble" of air escaping concomitant with urine loss. This problem is best addressed with a "hammock suture" a Vicryl suture placed in the EUL. See also www.integraltheory.org. Full abstract pag. 124.

Lessons from over 4000 prosthesis implantations. Menahem Neuman (*Nahariya, Israel*)

POP is based on herniation concept and so therapeutic tools are to be based on the knowledge accumulated regarding any hernia repair: this include a correct patient selection with proper indication to surgery, the surgical centre selection that should be based on experienced pelvic unit. This allows to guarantee the right surgery for the right patient. Vaginal hysterectomy defects the endo-pelvic fascia integrity and, although worldwide performed, is often not necessary.

Laparoscopic hysterectomy with CR MESH. Fernando Garcia Montes (*Maiorca, Spain*)

The use of triple mesh in 39 patients for correction of POP gained good results for urinary continence, creating dyspareunia and bad fecal continence. Also severe complications may occur such as compartimental syndrome, bladder and rectal perforation or erosion. Moreover, as mesh doesn't cover lateral defect and fixation is not anatomical, prolapse recurrence can be possible. Subtotal laparoscopic hysterectomy performed in 31 patients provided good anatomical and functional results.

The easiest operation but the most litigation. Gab Kovacs (*Melbourne, Australia*)

The preferred procedure for female sterilization is represented by laparoscopic tubal occlusion and the commonest

way to perform it is Filshie clips application to the mid isthmus. This procedure, very popular in Australia, was criticized in early '90s because of risks for health women. Moreover a rate of "failure" was described. Today this failure rates accounts around 1%. Filshie clips remains the preferred method for sterilization. No procedure is 100% safe. The use of calibrated applicators, the record clip batch and applicator number are advisable and photograph should be taken whenever possible during the procedure.

Botox- more than just a pretty face. Paul Duggan (*Adelaide, Australia*)

Botulinum toxin is being increasingly used in the management of overactive bladder and idiopathic and neuropathic detrusor overactivity. A 60-70% response rate can be expected. Major impediments to its use include its unlicensed status and fear of prolonged urinary retention, which limits recruitment in trials and in clinical practice. Death following therapeutic use of Botulinum toxin has been reported in adults and children but not to date following intradetrusor injection. Full abstract pag. 124.

Miniarc versus transobturator. Anna Rosamilia (*Melbourne, Australia*)

Although RP and TO seem to be equivalent subjectively for SUI cure rates, objectively the trend appears more efficacious for RP than TO. In our study miniarc vs TO, preliminary results demonstrated that miniarc is safe having just 1 single patient with hematoma. Moreover no mesh exposure and no urinary retention was reported and 1 patient had pregnancy 8 months after miniarc procedure.

Incontinence and diabetic cystopathy in women. Tse Kiat Ng (*Singapore*)

Prevalence of UI in diabetic cystopathy rates from 25-87%. Causes are varying and include detrusor hyperriflexia, reduced detrusor contractility and areflexia. Both detrusor muscle and bladder urothelium play a role in cystopaphy. As the process is often insidious, a prompt diagnosis must include history, symptoms and signs such as decreased bladder sensation, increased bladder capacity and impaired emptying, increased bladder volume at 1st sensation to void. Urinalysis, urine culture, urodynamics ad dosage of serum glucose, HbA1c and urea/creatinine ratio are necessary. Therapy includes behavioural modalities and surgical procedure such as vescical neck resection, selective pudendal nerve block and SNS.

Finally a solution for the atonic bladder. Bill Lynch (*Sydney, Australia*)

Atonic bladder is defined as the inability of emptying bladder by detrusor contraction and recognizes neurogenic and myogenic mechanisms. Treatment options may be pharmacological, mechanical, inflow devices (just for women) and SNS. Self catheterization (CISC) remains the mainstay but inflow devices and especially SNS seemed to be good alternatives in selected patients

Neoligament repair in Pelvic reconstruction. Max Haverfield (*Melbourne, Australia*)

Our study purposed to assess safety and efficacy of Tissue Fixation System (TFS) neo-ligament site specific for restoration of pelvic floor anatomy with or without uterine preservation. All pts were worked up with POP-Q, QoL survey, urodynamics medical and surgical co-morbidity assessment, PISQ12 and bowel dysfunction. TFS creates neo-ligaments to mimicking those existing that are damaged or loose to regain resistance to muscle forces and support to stretch receptors and nerve bundles. A total of 105 TFS procedure were performed. From our preliminary results TFS seems to be safe, highly reproducible technique, minimally invasive without necessity of large tissue dissection, allows accurate anatomical and physiological restoration of POP and more efficacious with less usage of pelvic mesh.

Developing a new journal in pelvic medicine: history and future of "Pelviperineology". Giuseppe Dodi (*Padova, Italy*)

Pelviperineology is an open-access journal publishing original articles on scientific, clinical and experimental topics on physiology and pathology of the pelvic floor in urological, gynaecological and colo-rectal fields. It has a multidisciplinary and interdisciplinary perspective, it is open to different points of view, and pluralistic in its nature, and unconditionally agrees with the ethic principles of the World Association of Medical Editors (WAME) In 1982 it was founded in Padova as the Rivista Italiana di Colon-Proctologia. In 2006 it became the journal of the *Australasian Association of Vaginal & Incontinence Surgeons* (AAVIS), now the *International Society for Pelviperineology* (ISPP). Full abstract pag. 125.

Pelvic floor rehabilitation update. Sherin Jarvis (*Sydney, Australia*)

From 40 yrs old on even elite athletes suffers sarcopenia. Pelvic fiber muscles contraction (PFMC) and pelvic fiber muscle training (PFMT) helps to decrease sarcopenia related to ageing and to menopause. PFMC exercises before and during increased intra-abdominal pressure (IAP) decrease risk of SUI**.**

Functional Cine MRI in the evaluation of female pelvic floor dysfunction. Yasukuni Yoshimra (*Tokio, Japan*)

As POP is a dynamic phenomenon it requires a dynamic way of studying also because prolapse can't be clearly demonstrated although patients complain symptoms. Cine MRI allows to short acquisition time and also a functional evaluation under Valsava maneuver. This technique gives a global and panoramic view of the three pelvic compartments, visualizing soft tissue too and, even though expensive and a standardization of methodology is still lacking, it represent a powerful tool for research in clinical and anatomical studies.

Cosmetogynaecology: a new specialty? Oscar Horky (*Kiama, Australia*)

In spite of the negative views of conservative gynaecologists and certain female activists women have made their concerns regarding their genitalia known. They have demanded cosmetic genital procedures. Unfortunately faced with refusal by those they should trust most they have turned to practitioners often with poor knowledge of women and their anatomy. Encouraged by outrageous fees, inadequate and unskilled surgery has frequently been the result. There is a demand for aesthetic genital surgery and often in conjunction with cure of prolapse and incontinence. To this end aesthetic gynaecology should be done by suitably qualified gynaecologists with a special interest in this area.They could be called cosmeto-gynaecologists.The talk is illustrated by slides showing the development of cosmeto-gynaecology, a few techniques and pitfalls." horky609@live.com.au

CR-MESH REPAIR FOR POSTERIOR COMPARTMENT PROLAPSE

Erica Stocco, Giuseppe Dodi
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Introduction

Pelvic organ prolapses (POP) include *genital* prolapses (anterior and posterior colpocele, hysterocele, vault prolapse, and enterocele), *anal* prolapses (haemorrhoids, mucosal and rectal prolapse), and the so called *internal prolapses* of the terminal bowel (occult mucosal prolapse and rectal intussusception). The results of CR-Mesh repair in POP are presented with special attention to the signs and symptoms connected to the posterior vaginal compartment and the anorectum, i.e. dyspareunia, constipation, and fecal incontinence.

Materials and Methods

Forty one patients have been treated for POP between 2007 and 2011, mean age 63.1 (41-84), average 2 pregnancies, 85% in menopause (44% surgical), 50% sexually active, having had previous surgery: 5% urological, 37% POP, 49% hysterectomy, and 24% rectal. The pre-operative work-up included a multidisciplinary evaluation by urologist, gynecologist and colorectal surgeon. The patients have been studied, according to symptoms and signs, as follows: *imaging procedures* (cysto-colpo-defecography, RMI, perineal/endoanal ultrasound, abdominal US, barium enema, colonscopy), *functional tests* (urodynamic study, solid sphere test, EMG, anal manometry, intestinal transit time), *diaries* (constipation, fecal incontinence, urinary incontinence), *quality of life assessment*, measurement of *genital prolapse* conforming the POP-Q system, classification of *anal and internal prolapses* in 4 degrees, (rectocele being defined as a hernia of lower rectum into perineal body, well distinguished from posterior colpocele that can be associated in various HWS degrees), measurement of *constipation* severity conforming the Cleveland Clinic Score (0..30,mild 1-5, moderate 6-10, severe 11-15 or very severe 16-30, of *fecal incontinence* using the American Medical Score System (AMS, 0..120, including QoL), of *dyspareunia* superficial and deep, according to quality of life impairment. Patients' *complaints* were: anal, abdominal, perineal or genital pain (61%), sense of prolapse (100%), dyspareunia (17%), urinary incontinence (34%) (stress/urge, with a pathological urodynamic study in 15 % of the cases),voiding LUTS (32%), constipation (32%) with obstructed defecation in 19% of cases, fecal incontinence (15%), rectal prolapse (7%) and diagnosis of rectal intussusception in 19% of cases. The *surgical technique* used was a transvaginal placement of a CR-Mesh, fixed to the sacrospinous ligaments. We treated 15% of patients by an anterior mesh, 41% by posterior mesh and 44% by double mesh (anterior and posterior) according to patients' pre-operative POP-Q and intra-operative clinical evaluation. The mean *operating time* was 159 min, being slightly longer for double correction and shorter for posterior mesh only. Estimated blood losses were not relevant (average 35 cc, 0 – 500). Mean *hospital stay* has been 7 days (3-12), being prolonged in the first series of patients due to the learning curve and because of urinary retention or other complications. *Intra-operative complications* were bladder perforations (3 cases, small size lesions, conservative treatment, no sequelae) and one small rectal lesion repaired immediately without consequences). *Post-operative complications* consisted in anaemia (the maximum blood transfusion was 3 units), one case requiring re-hospitalization for vaginal haemorrhage. Other post-operative complications included 1 case of presacral haematoma, 2 cases of urinary tract infections, 1 case of femoral neuropathy treated by rehabilitation, with no sequelae and 1 pelvic abscess (spontaneously drained and treated with antibiotics, requiring re-hospitalization. The mean *follow up* was 19 months (2-35).

Results and discussion

No patients had stage of POP-Q less than ll,7% had a stage ll, 69%III, and 24%IV. After the treatment, 49% had a stage 0, 15% I, 7% II, and none III or IV, the difference being significant (p<0,001, trend test). Erosion rate has been 19%, considering also lesions <4 mm, only 2 cases reached 20 mm diameter and required local removal of the exposed mesh. No patients had *recurrent prolapse* (POP-Q stage >ll or symptomatic II stage) in the treated compartment. Stage l was observed in one case and asymptomatic stage ll in 2 cases. A *new prolapse* in the untreated compartment (POP-Q stage >ll, or symptomatic stage ll) developed in 2 patients (5%); a stage l was present in 3 cases (7%), and an asymptomatic stage ll in 8 (19%). Focusing our attention on the posterior compartment, I degree *rectocele* preoperatively was seen in 11 women, after surgery in 9, while a II and III degree respectively in 12 and 6, but none postoperatively. Eight patients complained for l degree *haemorrhoids* pre-, and 5 postoperatively, for II degree one case pre- and postoperatively. A preoperative l and ll degree *mucosal prolapse* (18 and 6 cases), after the operation was reduced respectively from 18 to 15 cases, and from 6 to 1. *Enterocoele* (I-IV degree) was no more detected at follow up. Rectal *intussusception* decreased from 8 to 3 cases; complete *rectal prolapse* was corrected in 2/3 cases, the third one requiring an anal encirclement after CR-Mesh. *Fecal incontinence* was a complaint for 6 patients pre-operatively being associated to complete rectal prolapse in 3, and to intussusception or mucosal prolapse in the others. It was corrected after surgery in all but one patient who was emotionally very disturbed both pre and postoperatively. The CCS score of *constipation* did not show any significant variation after surgery, despite the type of mesh, anterior, posterior or double, and the correction of posterior colpocele and rectocele. Pre-operatively 50% of patients were sexually active and post-operatively 46, d*yspareunia* being a preoperative complaint in 19%, and after surgery in 17%, both data being not significant. These numbers have been explained in some patients with the fear for the intercourse after surgery. Impairment of *quality of life* caused by the prolapse was either moderate or severe in 100% of the patients; after surgery QoL was good or only slightly altered in 82% of patients, and moderately or severely impaired in 18%due also to general health, psychological or social problems, the improvement being anyway highly significant (p<0,001, trend test).

Conclusions

CR-Mesh appears to be a good procedure for the treatment of Pelvic Organ Prolapses, the results in the treated compartment being satisfactory at middle and long term follow up. Complications are few and without consequences, the results in vaginal function are good. There are interesting data concerning the correction of ano-rectal prolapses and of ano-rectal dysfunctions: both complete rectal prolapse and intussusception can recover only when the mesh blocks the bowel descent starting low enough in the pelvis. This study is a further demonstration that constipa-

tion depends on other causes than merely the posterior compartment prolapse when present. An open question remains the need for an overtreatment to prevent prolapses in the untreated compartment.

THE IMPROVEMENT OF URINARY QOL AFTER THE TFS TENSIONED MINISLING OPERATIONS FOR ADVANCED PELVIC ORGAN PROLAPSE IN OUTPATIENT CLINIC – 1YEAR RESULTS –

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Hypothesis / aims of study

The TFS is a "minisling device for stress urinary incontinence and pelvic organ prolapse". It is made with two polypropylene plastic anchors attached to an adjustable non-stretch monofilament polyprolylene mesh tape. The TFS consists of the 4 prolonged anchors, its mode of action is like a grappling hook, and the one-way tensioning system. This has the unique quality of restoring laterally displaced ligaments and fascia to the correct anatomical position. The aim of this study was to assess the effectiveness after 1 year of the Tissue Fixation System (TFS) for repair of pelvic organ prolapse (POP) including the improvements of QoL.

Study design, materials and methods

We studied prospectively 54 POP operations performed on day surgery basis between October 2008 and February 2010. Average patient age was 67years. This procedure can be done under local anesthesia with midazolam 5mg intravenously. First they took cervical ring TFS slings for restoration of the cardinal ligament, second TFS U-sling for paravaginal repair and finally USL TFS sling for restoration of the uterosacral ligament. Levels of POP were grade 2 (n=20) (37%), grade 3 (n=30)(55%), and grade 4 (n=4) (7%) by according to the ICS POPQ classification. Grade 2 was defined the condition when the most distal portion (leading edge) of the prolapse was ≤ 1 cm proximal to or extends 1 cm through the plane of hymen (≥ - 1 cm, but ≤ + 1 cm).

Results

Follow up was performed at 1year. We defined 2nd relapse as failure before 1year. Of 54 cases, 47 were cured (87%) and 7 failed 13%). One younger patient needed emergency hospitalization for hematoma. Of the 7 failed cases, 5 were reoperated and cured using the TFS. We found 5 cases of erosion by tapes.We used Prolapse Quality of Life (P-QOL) and International Prostate Symtom Score (IPSS) as questionnaires before and after operation. We evaluated "QOL effected by POP" by P-QOL question (Q) at which point 1 is "not effected at all", point 2 is "effected slightly", point 3 is "effected considerably" and point 4 is "effected very much". Furthermore we evaluated urinary QOL in which "pollakiuria" by P-QOL Q3, "urgency" by P-QOL Q ,"urge incontinence" by P-QOL Q5, "stress incontinence" by P-QOL Q6. In those questions, point 1 is "no symptom", point 2 is "have no trouble", point 3 is "have trouble a little", point 4 is "have trouble considerably" and point 5 is " have trouble very much". And we evaluated "nocturia" by IPSS Q7 which is the number of awaking times for voiding.

The average score of P-QOL Q "QOL effected by POP" changed from 3.77±0.78 to. 2.44±0.61; of P-QOL Q3 "pollakiuria" changed from 3.29±1.02 to 2.72±0.79;of P-QOL Q4 "urgency" changed from 3.11±0.98 to.2.63±0.67; of P-QOL Q5 "urge incontinence" from 2.98±0.82 to.2.61±0.68; of P-QOL Q6 "stress urinary incontinence" changed from 3.21±0.99 to.2.81±0.79; of IPSS Q7 "nocturia" changed from 1.76±0.87to.1.56±0.59.

Interpretation of results

The cause of the hematoma which needed emergency hospitalization should be rich blood supply for uterus during menopause.

Concluding message

Day surgeries of POP by TFS are effective and safe operations for patients over 60 years old whose blood supply of uterus get few and improve the urinary QOL of those POP patients.

PROCEDURE SELECTION IN PELVIC ORGAN PROLAPSE SURGERY. SCIENCE, ART OR LUCK OF THE DRAW?

David Shaker

Consultant Gynaecological Surgeon, Hillcrest Private Hospital Rockhampton, Australia

Surgical procedures for treatment of uterovaginal prolapse are numerous. Failure and recurrence of prolapse drives the expansion of the available options for prolapse repair. However the bases for selection of any one or combination of the available procedures are not clear.

The presentation will concentrate on some of the important issues which could play significant role in the decision of the pelvic surgeon to select certain procedures for certain cases.

The issues discussed include: prevalence of different defects, impact of one defect on the other compartments, the impact of one procedure on the other compartments, does the cervix affect the impact of apical support reconstruction on the other compartments? What can we learn from early onset failure of prolapse surgery? Does the configuration of the used mesh affect the results? How do all these factors inform the process of procedure selection? This presentation is not meant to be a review of current literature, but rather represents mainly the author's views and based on the author's experience and clinical research.

SURGERY IN THE LONG-TERM MANAGEMENT OF OBSTETRIC ANAL SPHINTER INJURIES

Tony Eyers

Colorectal Surgeon, Macquarie University Hospital and Clinic, Sydney, Australia

Obstetric trauma rates highly as a cause of faecal incontinence managed by colorectal surgeons. We are rarely involved in immediate repairs following frank sphincter injuries – and I see no need for this to change. However we are often asked to perform delayed repairs and close associated rectovaginal fistulas. Good results are usually obtained after either an immediate or delayed repair, but experience has now shown that function gradually deteriorates over a ten-year time-frame. Pudendal neuropathy is an additional factor contributing to a poorer outcome. Recently sacral neuromodulation has shown encouraging results when used

for faecal incontinence, and the results appear to be equivalent whether the underling pathology includes an anatomical sphincter injury or not. As a result of this experience most colorectal surgeons would favour performing a surgical repair when a frank anal sphincter injury has occurred, but not repeat it later when the functional result deteriorates, preferring instead to move to sacral neuromodulation at that time. Faecal incontinence is best managed in an environment where patients have access to nurse consultants and biofeedback as well as the various surgical interventions available.

THE NEXT LAYER OF ANATOMY

John Cartmill, David Butt
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Anatomy is influenced by culture and technology. This was true in the sixteenth century when Vesalius called on the shipbuilding skills of the Venetians to create the University of Padova's elegantly tiered gallery and it is true as we fuse imaging, audiovisual and live surgical feed with the most modern anatomy laboratories. Even the inventive anatomy of Galen had a wisdom and relevance to it that reflected the culture and supported the (limited) therapeutic needs of his time. Thought and language are tools as well and to put this in perspective It was only a few hundred years earlier that the Greeks had developed language to the extent that it would support even rudimentary logic. Language – the way we make meaning – is a technology just like any other. This paper acknowledges the collaboration between engineers and imaging that enabled the anatomy school at the Australian School of Advanced Medicine at Macquarie University. Collaboration with linguists has also been vitally important. Linguists study "meaning making" and the linguists I work with (David Butt and Alison Moore) consider surgery a supreme example of meaning making…this idea takes some getting used to as a surgeon but its worth considering. What we do changes things emphatically, makes a statement. Like a painting or a sculpture. And what limits our surgery other than our understanding of anatomy. Vesalius' anatomy and physiology had its limitations and would not have enabled a liver transplant…but he wasn't trying to do a liver transplant and his anatomy satisfied the cultural, scientific and therapeutic needs of the age. A hundred years later Harvey more successfully linked function to anatomical structure and since then, first with the technology of the microscope and then increasingly sophisticated technologies and entire new fields of enquiry anatomy has explored successively deeper layers – intracellular, genetic and molecular. All very useful from a therapeutic perspective but surgery continues to relying on the anatomy of hundreds of years ago. It's still internally consistent and it's still beautiful and it's still very useful but technology and our imaginations are taking surgery into territory that is no longer supported by classical or even so called surgical anatomy. Surgical anatomy is the anatomy of access and planes and biomechanical properties and the effects of age and disease and it is useful. However it is confined to the surface and beneath. But surgery is really developing in the layer outside the body. In part because of advances in instrumentation but also because of advances in teamwork, communication and cooperation.

I want to talk about this layer outside the body where this action takes place. We could call it a penumbra. As surgeons we might come to a challenging bit of pathology and pause…and come at the problem from another angle. I am going to do that now and look at how some other areas of endeavor treat that interactive space between people. There is a language for wrestling [half nelson] [full nelson] and fencing, there is a language for love making but not operating. There is a language for massage and dancing but they all stop at the skin – perhaps because therapy stops at the skin. We call operations by what we have done or hope to do…an anterior resection or an anterior repair …but not the doing. The target…but not the team work in the penumbra – the coordinated effort that produces it. When I began to think of this layer as a describable (anatomical) layer it was composed of physical things; Instruments and stances and actions…but I see no reason to limit it to the physical and all tools; tools of communication and language included can fit into this abstract layer where we get things done. This is the region of anatomy – the penumbra of anatomy where we show one another how to do it – where we work together – where – as surgeons – we make something happen.

USING IMAGING TO UNDERSTAND HOW SLINGS WORK

Lewis Chan
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Introduction

There is increasing use of transobturator slings in the treatment of male and female stress urinary incontinence. The aim of this study was to evaluate the technique and feasibility of ultrasound imaging in patients with synthetic transobturator slings and assess their potential mechanism of action.

Methods

Transperineal ultrasound was performed on 12 male patients who underwent AdVance transobturator male sling, 10 females who were continent following Monarc transobturator sling and 3 females who had voiding dysfunction following placement of suburethral sling. 2D Ultrasound examinations were conducted using a SonoSite M-Turbo ultrasound machine and C5-2 MHz transducer. X-plane imaging of the AdVance male slings was performed using Philips IU22 ultrasound machine. Patients were imaged at bladder volumes of over 150mls in supine and standing positions, at rest and on Valsalva. Imaging findings including bladder neck position, urethral mobility and position of the sling relative to the urethra on dynamic imaging were recorded.

Results

All 25 slings were well visualized on transperineal ultrasound. The Monarc slings were located at the level of the mid-urethra while AdVance slings were located at or above the inferior border of the pubic symphysis. Urethral mobility was demonstrated with Valsalva in both male and female patients and was more pronounced in females. During Valsalva, there was dynamic compression of the urethra from the Monarc sling in females who were continent but angulation/kinking of the urethra was observed only in patients who had voiding dysfunction due to sling obstruction. This was more evident in the standing position. In males with the AdVance sling there was less urethral mobility compared to females but dynamic compression of the urethra was also demonstrated with Valsalva and coughing.

Conclusions

Transperineal ultrasound is a good modality of imaging for demonstration of synthetic suburethral slings. Dynamic

compression of the urethra by transobturator sling was demonstrated during Valsalva in patients with AdVance and Monarc slings suggesting that these slings may have a similar mechanism of action in restoring continence in male and female patients with stress incontinence.

UROGYNECOLOGY IN INDONESIA: THE CHANGE AND CHALLENGE

Budi Iman Santoso, Junizaf
Jakarta, Indonesia

Indonesia is an archipelago located in the southeast of Asia along the equator. It comprises 17,000 islands (depending on who does the counting). Indonesia's approximately 240.3 million people make it the world's fourth-most populous nation, with slightly less male-dominant. Life expectancy at birth in 1999 was 60.8 for males and 65.3 for females. In 1995, the birthrate was 22.78 per 1,000 and the death rate 8.14 per 1,000, for a natural annual increase of 1.46 percent. The infant mortality rate was 57.3 per 1,000 live births. Indonesia has one hospital bed per 1,630 persons, and one physician per 6,570 persons.

Women's health has evolved in the last two decades. The significant indicators reflecting the continuing of women's health problems have also evolved from maternal mortality and infant mortality rate to the parameters on women's quality of life. Women's health problems are not only limited on the time of childbirth and biological factor. It has developed beyond the old perspective which includes women's health of their lifetime span with the consideration of cultural, social and psychological factors as well as biological.

Indonesia is a developing country with major problems in the social, political, and economic areas. Most people still have a low-subsistence standard of living. Therefore, although there has been a remarkable improvement in women's health, Indonesia still facing some significant problems. Reducing maternal mortality and child mortality are still considered to be two best keys of goals on women's health problems in Indonesia; while improving women's quality of life seems to be less noticed. Urogynecology problems seemed to be disregarded since the problems usually are not life-threatening. However, the small middle-and upper-class populations have a very good standard of life and the life expectancy is increasing with time. It is estimated that the country will join the developed countries in the near future. Thus, urogynecology which covers the quality of life for Indonesian women will have rapid breakthrough in a very short period of time.

By writing this paper, we would like to reveal the rapid change of urogynecology in Indonesia as well as our challenge to bring great quality of urogynecology services in our country. Urogynecology in Indonesia presented, including the real situation, education and training, as well as further studies and research.

PELVIC FLOOR RECONSTRUCTION USING CR-MESH (A.M.I.): PAST, PRESENT, FUTURE

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Introduction

The high recurrence rate of pelvic organ prolapse after traditional pelvic reconstructive surgery has been estimated to be up to 30%[1]. Thus, it has become increasingly important to improve surgical strategies to decrease the incidence of surgical failure and recurrent prolapse. Recently, the use of surgical mesh in pelvic floor surgery has become more and more popular. Mesh placement is usually performed using vaginal access. The mesh could be positioned and sutured over the fascial defect as an 'inlay', or the whole vagina could be surrounded by mesh. While general surgeons have had decades of experience using mesh in hernia surgery, the design and development of grafts in gynecologic procedures is still ongoing. In pelvic prolapse treatment, the new tecniques in pelvic reconstructive surgery could be simplify as following:

– *first generation* of mesh (2000-2003): graft for simple fascial replacement, *goal*: fascial reinforcement – better results than fascial surgery,*lack*: failure in recovering upper and lateral supports;

– *second generation* (2003-2007): tension-free vaginal mesh techniques with procedural kits with lateral slings passing trough arcus tendineus for deep anterior support and trough ileo-coccigeus muscle or sacro-spinous ligament for deep posterior support, *goal*: ensure lateral support, *lack*: failure in recovering strong upper support;

– *third generation* (2007- …): fixation of both the anterior and the posterior compartmentsto apical support (suspension the sacro-spinous ligament) using sutures, *goal*: ensure strong upper support; *lack*: invasiveness, too many trocar passages;

– *new generation* (2009 - …): further confirmation of the necessity of strong sacro-spinous ligament fixation, using anchors or slings, associated with trocar-less systems using a single-incision. *goals*: be less invasive as possible (trocarless procedural kits) + ensure (strong?) upper support, *lack*: the upper support is not so strong (expecially using slings), the new procedural kits are enable to create a total pelvic floor repair.

The aims of this abstract are to describe a third generation total pelvic reconstructive procedure using CR-Mesh (A.M.I.), to present the results in women with pelvic prolapse stage III-IV in our first two years' experience using this technique and to introduce a new pelvic floor repair procedure which combine the goals of the third generation of mesh (strong upper support and total repair) with the goals of the new generation (miniinvasive trocarless procedural kit).

Materials and Methods

Between 1st September 2009 and 31st August 2011, we proposed pelvic floor reconstruction (PFR) using CR-Mesh (A.M.I.) to all women who required surgical treatment for pelvic prolapse stage III-IV (POP-Q classification) and who had more than one risk factor for recurrence. The surgical technique suited the following concepts: 1. fixation of the anterior and of the posterior compartmentsto the De Lancey[2] Level I apical support (by bilateral suspension to the medial end of the sacro-spinous ligament); 2. recreation of the De Lancey Level II lateral support (using transobturator and trans-ileo-coccygeus slings); 3. recreation of the De Lancey Level III distal support (by recreating bladder neck support and by reinforcing perineal body using superficial slings).

Surgical technique in detail

– Anterior infiltration with 40-60 mls of dilute normal saline with adrenalin at a depth of 2-4 mm.

– Anterior full thickness vertical incision, extended distally to the level of the bladder neck and proximally to a point 2 cm below the cervix, and lateral dissection extended to the sulcus on each side and proximally towards the cervix.

– Posterior infiltration in a similar manner to the anterior vaginal wall.

– Posterior full thickness vertical incision, extended proximally to a point 1-2 cm below the cervix distally towards the perineum.

– Place a single central 2/0 monofilament polypropylene suture in the anterior and posterior cervix under the skin edge at the cervical end of each vaginal incision.

– Open the pararectal space extending the lateral dissection to the sulcus on each side: the ischial spine can then be felt clearly together with the arcus ligament above and the sacrospinous ligament below.

– Create the apical attachments using monofilament polypropylene sutures placed in position using I-stitch (A.M.I. suture instrument): two apical attachments are placed on each side in the medial posterior aspect of the sacrospinous ligament immediately contiguous to the sacrum/coccyx.

– Two of the four apical attachments (one on each side) are then passed through the cervix from back to front.

– Placement of posterior CR-mesh and pass the posterior cervical suture and both of the pre-positioned apical (medial sacrospinous) posterior attachment sutures through the edge of the mesh.

– Placement of the proximal translevator slings: make a small full thickness skin incision approximately 3 cm lateral and 3 cm posterior to the anus on each side and use the A.M.I. TVA tunneller to pass each sling through the ischiorectal fossa and through the levator muscle approximately 2cm medial and inferior to the ischial spine.

– Anteriorly: open the paravesical space and reach the ischial spine, the arcus ligament and the sacrospinous ligament. Then the bladder neck is prepared by dissecting free the lateral supports of the upper urethra.

– Placement of anterior CR-mesh and pass the central anterior cervical attachment and both pairs of apical attachment sutures through the edge of the mesh.

– Placement of proximal transobturator slings: make a small vertical skin incision 1 cm above the ischial tuberosity on each side and use the A.M.I. Semi-Circular tunneler to pass each sling through the posterior aspect of the obturator foramen.

– Secure the upper vaginal attachments remembering that the four apical suspension sutures are not meant to pull the cervix up and attach it to the sacrospinous ligament. Rather, they are designed to replace the uterosacral ligament and suspend the apex from its' normal anatomical origin.

– Placement of distal transobturator slings: make a skin incision at a point 1 cm medial to the skin fold at the level of the clitoris, cut the anterior CR-mesh in the midline to reach the bladder neck and use the TOA tunneller with an outside-in approach to pass both distal mesh extensions through the anterior aspect of the obturator foramen.

– Anterior vaginal skin closure.

– Placement of perineal slings: cut the posterior CR-mesh in the midline and use the TVA tunneler to pass both distal mesh extensions posteriorly through the perineum, around the anus and emerge from the same skin incision as the proximal translevator slings.

– Posterior vaginal skin closure.

Results

During the considered period of time, we performed 312 vaginal reconstructive surgery operations, of these 88 using the PFR technique with CR-mesh (A.M.I.):

– 53 PFR using two meshes (anterior + posterior) and conserving the uterus, in patients with uterine prolapse stage III-IV + cystocele stage III-IV + rectocele stage II-IV;

– 23 PFR using two meshes (anterior + posterior)in patients who previously underwent hysterectomy and who had vaginal vault prolapse stage III-IV with a complete eversion of the vagina;

– 5 PFR using only the anterior mesh and conserving the uterus, in patients with cystocele stage III-IV + hysterocele stage II-IV and without rectocele;

– 4 PFR using only the posterior mesh in patients who previously underwent hysterectomy and who had vaginal vault prolapse with recto/enterocele stage III-IV and without cystocele;

– 2 PFR using only the posterior mesh and conserving the uterus, in patients with rectocele stage III-IV + hysterocele stage II-IV stadio and without cystocele;

– 1 PFR using only the anterior mesh in patients who previously underwent hysterectomy and who had vaginal vault prolapse with cystocele stage III-IV anteriore and without recto/enterocele.

Intraoperative complications: bladder perforation occurred in three cases, all of them resolved maintaining catheter for 10 days.

Postoperative complications:

– 21 cases of urinary retention resolved with indwelling catheterism for one week;

– 6 cases of subperitoneal hematoma, spontaneously resolved in one month;

– 37 cases of perineal and lumbar-sacral pain (VAS > 6), temporarily resolved with ketorolac 20 mg/die and definitely resolved after 10-15 days;

– 18 cases of difficult defecation, all in the first 50 cases of the learning curve, all resolved in 2 months with dietary correction;

– 11 cases of stress urinary incontinence de novo: of these, 6 patients resolved in six months with perineal rehabilitation and 5 patients who underwent transobturator urethral suspension 6-9 months after the PFR operation.

Follow-up:

61 of the 88 patients were reviewed one year after surgery: none of them had recurrence of the prolapse (considering prolapse > stage I); no mesh exposure was observed; 9 patients had deep dyspareunia

Conclusions

Anatomical and functional results, quality of life and sexual function questionnaires must be assessed with a long-term follow-up to confirm the effectiveness and safety of the CR-mesh procedure but, according to the peri-operative and short-term follow up results, pelvic floor reconstruction using CR-Mesh (A.M.I.) seems to be a safe technique to correct pelvic organ prolapsed stage III-IV.

In addition, for the benefit of the technique, today PFR could be performed using a particularly soft iso-elastic mesh: HexaPro-Mesh (AMI - Austria), which has a weight of 21 g/m2, less than other meshes used for the utero-vaginal prolapse, with a porosity of 93% and characteristic hexagonal pores that provide elasticity in all directions. This mesh is specifically designed to minimize fibrosis and retraction after surgery.

The PFR technique provides excellent results, confirmed at 1-year follow-up, and proves to be a safe solution for prolapse stage III and IV. However, this technique has two weaknesses: the invasiveness related to the multiple passage of trocars in the muscular structures of the pelvis and the dyspareunia associated with fibrosis and retraction. It is not

a retraction of the mesh, which is always soft even after one year, but of the crossing part between the slings and the mesh itself. To overcome these problems and in the wake of the new tendency to make prosthetic interventions through a single vaginal incision and without the use of trocars, from the beginning of 2011 our group started to perform a new less-invasive technique that could ensure the key points of PFR original intervention: the reconstitution of the three levels of suspension described by DeLancey, the solid apical support secured by the passage of sutures through the medial part of sacrospinous ligament using I-Stitch and the isoelasticity of HexaPro-Mesh, with hexagonal shape and size that follow exactly the anatomical distances to be covered, so as to optimize the amount of mesh necessary for the correction of prolapse and without using any slings.

For the moment, from 7th of March 2011 to 7th of September 2011 we performed only 20 cases with this technique, which we have called "InGYNious". This mini-invasive technique, compared to the original PFR, seems to reduce the postoperative pain: in none of the 20 cases the patients had pain with VAS> 6. Of course long-term follow-up is mandatory to reach conclusions, but we can say that the anatomical results at 1-month follow-up are exciting. We will start soon a prospective randomized study PFR with CR-mesh versus InGYNious to be able to scientifically validate our theories.

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THE SURGICAL ANATOMY OF STRESS AND NON-STRESS NON-URGE URINARY INCONTINENCE

Peter Petros
Sydney, Australia

The female urethra is closed by two distinct closure mechanisms, proximal and distal.

Proximal ("bladder neck") closure mechanism. Two backward acting muscle forces stretch the proximal urethra backwards and downwards in a rotating motion around an intact pubourethral ligament (PUL) to close the urethra. This is the prime mechanism for control of urinary stress incontinence (USI), and it is restored by placement of a midurethral sling.

Distal ("hammock") closure mechanism. The anterior portion of pubococcygeus muscle stretches the suburethral vagina ("hammock") between PUL and the external urethral ligament (EUL) to close the urethra from behind. Whereas this mechanism also plays some part in stress incontinence control, its main function is as a "sealing" mechanism. A lax EUL may lead to non-stress urine loss in patients who have been cured of USI. A diagnostic symptom is a "bubble" of air escaping concomitant with urine loss. This problem is best addressed with a "hammock suture" a Vicryl suture placed in the EUL, hammock on both sides, ending in the contralateral EUL, *performed at the same time as any midurethral sling*. A "hammock" suture was part of the original midurethral sling procedures performed in the early 1990s with Ulf Ulmsten. Videos demonstrate:

A) the only test possible to definitely diagnose a lax PUL, a unilateral miduretral pressure test.

B) the midurethral tensioned minisling with EUL/hammock repair. See also www.integraltheory.org

BOTOX- MORE THAN JUST A PRETTY FACE

Paul Duggan
Adelaide, Australia

Neurotoxin produced by *Clostridium botulinum* is the most lethal substance known. Botulinum toxin is being increasingly used in the management of overactive bladder and idiopathic and neuropathic detrusor overactivity (IDO and NDO). Intradetrusor injection of dilute solutions in an array pattern has been described with and without "trigone sparing" and with a variety of doses and commercial preparations. In Australia Botulinum A toxin (Botox® – Allergan Inc Irvine CA), the only product available, is supplied in vials of 100U. 300U typically used in NDO has relatively high rates of long-term urinary retention and most units are using between 100-200U in IDO. It is assumed that there is a trade-off between effectiveness and risk of urinary retention in this dose range, but there are no large scale published trials to determine optimal dose, optimal technique, timing for repeat injections, or long term outcomes. Some units restrict use to IDO and others will treat overactive bladder. Roughly a 60-70% response rate can be expected. Improvements in quality of life in responders are substantial. Major impediments to its use include its unlicensed status and fear of prolonged urinary retention, which limits recruitment in trials and in clinical practice. Will patients who respond be willing to present regularly for re-injection in the long term? Death following therapeutic use of Botulinum toxin has been reported in adults and children but not to date following intradetrusor injection. Botulinum toxin may be suitable for patients who have failed to respond to or are intolerant of standard anticholinergic medications – i.e. the same group who would be considered for sacral neuromodulation. Cost effectiveness of these alternative "super therapies" remains to be established.

DEVELOPING A NEW JOURNAL IN PELVIC MEDICINE: HISTORY AND FUTURE OF "PELVIPERINEOLOGY"

Enrico Belluco[1], Giuseppe Dodi[1], Bruce Farnsworth[2], Maurizio Spella[3]
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[3] *CheironLabs - Cheiron Sistemi S.r.l., Padova, Italy*

Introduction

A scientific journal is a living creature. It has a past and, hopefully, a future that has to be planned accurately due to the rapid evolution of science and of the media system. Going briefly through the history of the journal Pelviperineology enables us to reflect on changes in our profession over the last thirty years. Since the eighties of the last century there has been a flourishing of new surgical "subspecialities" or "superspecialities"such as urogynaecology or coloproctology, a branch of general surgery and gastroenterology. Such a subdivision or addition apparently is a logical and natural response to the increasing complexity of the scientific and clinical approach in any field of medicine. Opposition to this trend comes however from the clinical academic authorities and from the managers of the "mother" societies of urology, gynaecology and general surgery. In both cases they fear the risk of an over-fragmentation of resources and of competences.This centrifuge trend however seems justified by the limits of the individual knowledge ("specialist do it better"), and by medico-legal

intrusions becoming more and more pressing in our practice of medicine and surgery.

Birth and first steps of the Rivista Italiana di Colon-Proctologia (vol. 1-15)

In 1982 was founded in Padova the Rivista Italiana di Colon-Proctologia, initially four-montly, then quarterly, organ of the *Gruppo Italiano di Proctologia* (GIP).In 1985 the surgeons of the GIP and the gastroenterologists of the *Gruppo Italiano per lo Studio del Colon e Retto* joined to coordinate their scientific endevours. In 1990 the journal published the proceedings of the 1st International Symposium on Perineology, held in Venice. The neologism "perineology" was invented for the occasion reflecting a new unitary and integrated view of the anatomy, physiology and pathology of the pelvic floor. This was the first seed of what in the future would have been the multidisciplinary orientation of the journal. In 1994 the Rivista became the official organ of the *Società Italiana di Colon-Proctologia*.

The Italian Journal of Coloproctology (vol. 16-22) and the Pelvic Floor Digest

Between 1997 and 2002 an ambitious leap in quality was attempted, making the journal bilingual. However being a journal based exclusively on national Italian contributions and not indexed, the result was not satisfactory, and in 2003 the bilingual journal was abandoned and became once again the Rivista Italiana di Colon-Proctologia.

In the same year the *Pelvic Floor Digest* was commenced as a section in the journal. This is an educational survey which monitors 200 international journals and provides summaries of selected abstracts to help develop a multidisciplinary culture amongst the specialists working in this area. The website *www.pelvicfloordigest.org* publishes online the abstracts divided in ten interdisciplinary sections: forum/general, functional anatomy, diagnosis,prolapses, retentions, incontinences, pain, fistulae, behaviour/psychology/sexology, miscellaneous. At present the website is offline as it is undergoing a major upgrade which will allow the copy-editors to publish and comment online much faster the most interesting abstracts, and the readers to classify them more precisely in a sort of "social" tagging mechanism. The readers registered to the site will be able to comment on the selected abstracts making connections among them and with other contents in the web. The new site is being tested (beta test) and will probably be available in 2012.

Pelviperineologia (vol. 23-25)

In 2004 the name of the journal changed into "Pelviperineologia". The *Società Interdisciplinare del Pavimento Pelvico* founded in 1996 by an urologist, W Artibani then the Secretary of ICS, a geriatrist, F Benvenuti, P Di Benedetto, rehabilitation specialist, G Dodi, colo-rectal surgeon, and R Milani gynaecologist, had the journal as its official organ. The aim of this society was the proposal and validation of a sort of TNM of the pelvic floor dysfunctions: the IPGH (Incontinence, Pelvic Floor, General factor, Handicap) is a severity index where, with few scored items, the pelvic floor is "easily" defined in a unitary way.

Pelviperineology (vol. 26-30…)

In 2006 Bruce Farnsworth supported by the *Australasian Association of Vaginal & Incontinence Surgeons* (AAVIS) founded in 1996, suggested to bring to a wider audience the journal naming it *Pelviperineology*. In the same year Springer with a significant similarity in title and timing edited the French journal *Pelvi-périnéologie*. AAVIS during the annual congress in Vienna in September 2010 voted to change its name to the *International Society for Pelviperineology* (ISPP), its website being www.pelviperineology.com, and invited members of other likeminded groups, such as the *Integrated Pelvis Group*, *International Pelvic Floor Dysfunction Society, Pelvic Reconstructive Surgery and Incontinence Association (Turkey), Perhimpunan Disfungsi Dasar Panggul Wanita Indonesia, Romanian Uro-Gyn Society* to join together and form a truly international and multidisciplinary society.

"Pelviperineologia" in Italy continues to be the local edition of the journal, printed inside the English version. This Italian insert has its own Cooperation Board and is the official journal of the *Società Italiana di Pelvi-perineologia, Urologia Femminile e Funzionale* (SIPUF), and of the *Integrated Pelvis Group* (IPG), the latter having mainly an organizing role. It is desirable that in other countries the scientific societies involved in the same field follow this experience publishing their national editions in a total economical and scientific autonomy but with an interchange of experiences and contents. This project was achieved in a recent past in Australia. As a part of the *business model* it should be noted that the cooperation in advertising in both the international and local editions makes the pages of the journal more interesting to the advertisers, and improves its economic viability. The editorial choices and policies must be independent from the advertising.

"Pelviperineology" and "Pelviperineologia" are edited in paper (1500-4000 copies each issue depending on the need of the sponsors for promotional purposes, or on the publication of meetings proceedings), and online as free-access journals (www.pelviperineology.org and www.pelviperineologia.it). Both sites had over 100.000 visits in 2010, and from the present data in 2011 it is expected a 10% increase in number of visits and visualized pages.

The paper versions are printed by "Tipografia Veneta" in Padova, whereas the online journal is edited by Cheiron Co. and M Spella MD. Owner of the journal is G Dodi since 1990. The financial support for paper and online versions comes from advertisements. The last contribution from a scientific society has been from AAVIS in 2009. The total income in 2010 has reached thirty thousand euros, about 70% being paid to the printer. The budget for computerisation needs to be increased in view of the future programs.In order to reduce the costs of printing and to improve the web diffusion, nowadays a priority, since 2011 those who want to receive all issues are requested a subscription to IPG (subscriptions@pelviperineology.org). The fee is € 25,00 for Italy and € 30.00 for overseas countries. These numbers are obviously small being the journal free access online.

The *Editorial Board* is made of two Chief Editors, G Dodi and B Farnsworth, an Associate Joint Managing Editor, F Wagenlehner, two Co-Editors, N Lemos and A Sivaslioglu, and 26 members from 16 different countries.

Pelviperineology can be defined as an open-access journal publishing original articles on scientific, clinical and experimental topics on physiology and pathology of the pelvic floor in urological, gynaecological and colo-rectal fields. It has a multidisciplinary and interdisciplinary perspective, it is open to different points of view, and pluralistic in its nature. Pelviperineology unconditionally agrees with the ethic principles of the World Association of Medical Editors (WAME)

"Isubmit"

To face the challenge of an "open access" journal without any costs for the authors, Cheiron Sistemi S.r.l. set up a

project of software entirely online, called "Isubmit" able to reduce the times and costs of review, print and online publication of the journal. The system will allow the authors to submit their articles to the journals being constantly informed during all the review process. Aim of the software is to make easy all the procedures, from the article submission, stating the acceptation date using a time marker legal in Italy. It keeps updated the contacts with the referees, and tries to simplify the reviewing process itself. This software can greatly reduce (to approximately 30 days) the time of response to an article submission. If the article is accepted the software sends automatically the text and other added materials (figures, tables, etc) to the printer for the paper version and creates the preliminary version to be published online. The system will also present automatically the issues of the journal to PubMed Central in the requested format (xml) to allow an evaluation for acceptance and indexation. Within the end of 2011 it will be possible for the authors to submit articles directly to the Isubmit system.

Conclusion

Many years ago a challenge was accepted of giving through a small journal an instrument of communication to all those in Italy interested in an evolving medical and surgical speciality, coloproctology, to share useful information and to introduce readers to new concepts. The commitment not to miss any quarterly issue and to present interesting articles has sometime required considerable effort, but has always been met.

The challenge is now harder and the mission more difficult, the journal having become really international. Topics treated are very interesting from several points of view: medical, scientific, educational, human, moral, and, last but not to be neglected, commercial.

Pelviperineology's life today depends on several commitments strictly connected: to keep the international multidisciplinary opening planned in 2006, to achieve Pub-Med indexation and obtain an impact factor through computerization and obviously a good quality of articles, and strive for continuing innovation. The Pelvic Floor Digest, Isubmit, planning frequent reviews for non specialists, underline the need to increase the diffusion and popularity of the journal.

Acknowledgement

We acknowledge the help that Professor Peter Petros has given and gives for the development of the multidisciplinary journal, where we believe he can see the ideal, complementary voice of his Integral Theory of the pelvic floor.

ERRATA CORRIGE

The Authors of the article "Paravaginal defects and stress urinary incontinence" published in the September 2011 issue of Pelviperineology (pag. 84-88), are Eckhard Petri and Kiran Ashor. The correct names of the Authors in the cover are E. PETRI, K. ASHOK. Our apologies to Professor Petri and Dr. Ashok for the mistake.

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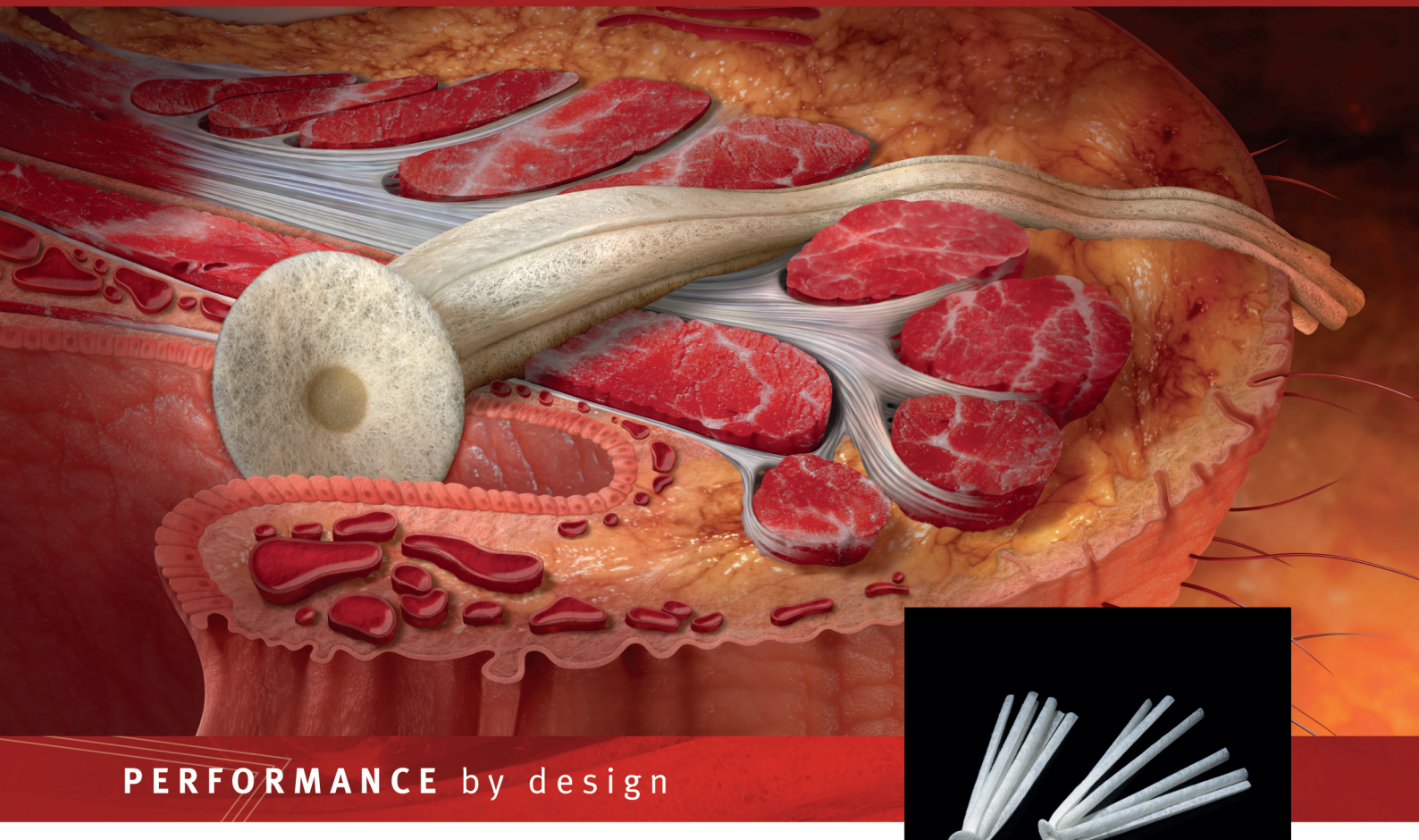

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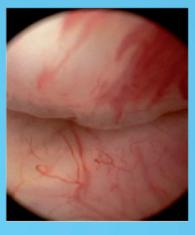

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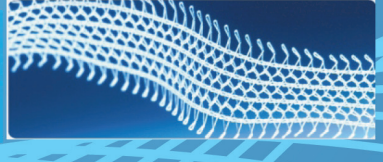

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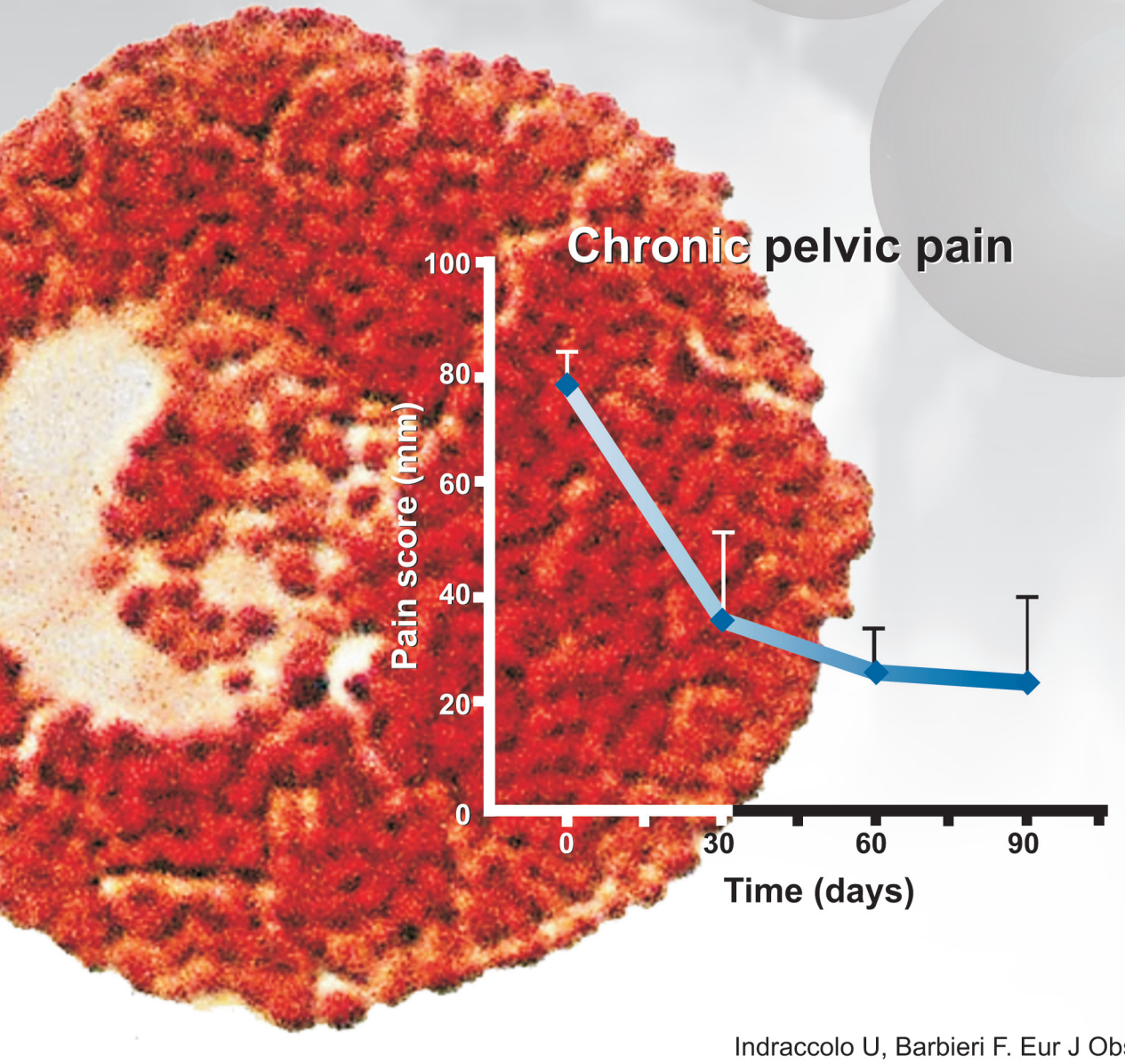

Indraccolo U, Barbieri F. Eur J Obstet Gynecol (2010)

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