How can we win the war against pudendal neuropathy?

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www.pudendal.com

Venice (Italy), 3rd October 2008

Question: How can we win the war against pudendal neuropathy?

Answer: Be open mind; don’t forget to think « pudendal »

Pudendal neuralgia
First publication

G. Amarenco, Y. Lanoe, H. Goudal, M. Perrigot
La compression du nerf honteux interne dans le canal d’Alcock ou paralysie périnéale du cycliste. Un nouveau syndrome canalaire.


Surgery of pudendal neuralgia
First publication

R. Robert, JJ Labat, PA Lehur, P. Glemain, O. Armstrong, J. Le Borgne, JY Barbin
Réflexions cliniques, neurophysiologiques et thérapeutiques à partir de données anatomiques sur le nerf pudendal (honteux interne) lors de certaines algies périnéales.

Chirurgie (1989), 115, 515-520.

Pudendal canal syndrome
First perineological approach

A. Shafik
Pudendal canal syndrome. Description of a new syndrome and its treatment. Report of 7 cases
Coloproctology (1991), 13, 102-110.

What is the name of our enemy?

Pudendal neuropathy
- Pudendal nerve entrapment (entrapment only)
- Pudendal canal syndrome (Alcock’s canal only)
- Pudendal neuralgia (pain only)

Venice (Italy), 3rd October 2008
Anatomy of the pudendal nerve

**Lesser sciatic foramen**

- SS = Sacro-spinal ligament
- ST = Sacro-tuberous ligament
- O = Obturator muscle between the 2 ligaments (lesser sciatic foramen)
- P = Piriformis muscle (greater sciatic foramen)

**Alcock’s or pudendal canal**

- NC = Nerve of the clitoris or penis not in the Alcock’s canal (AC)

**Fascia lunata**

- FL = The fascia lunata closes the lesser sciatic foramen (space between the 2 ligaments)

**Levator plate and puborectalis**

- 90% of the pudendal nerve is under the levator plate (LP)

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FL = The fascia lunata closes the lesser sciatic foramen (space between the 2 ligaments)

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Image from: http://www.indiasurgeons.com/lectures/ischio_rectal_fossa.htm

*Applied Anatomy of Ischiorectal fossa and Pelvic Floor* - Dr. Barin Bose, Jabalpur (MP)
**Rectal nerve passing through the sacro-spinal ligament in 11% of the cases**

**Pudendal neuropathy**

**The symptoms**

<table>
<thead>
<tr>
<th>Classical (Shafik)</th>
<th>Others ??</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perineodynia (pain):</td>
<td></td>
</tr>
<tr>
<td>- pudendal neuralgia</td>
<td></td>
</tr>
<tr>
<td>- vulvodynia</td>
<td></td>
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<tr>
<td>- proctalgia fugax</td>
<td></td>
</tr>
<tr>
<td>2. Anal incontinence</td>
<td></td>
</tr>
<tr>
<td>3. Stress urinary incontinence</td>
<td></td>
</tr>
<tr>
<td>4. Impotence</td>
<td></td>
</tr>
<tr>
<td>5. Perineal hypo or dysesthesia</td>
<td></td>
</tr>
<tr>
<td>6. Dyschesia</td>
<td></td>
</tr>
<tr>
<td>7. Dysuria</td>
<td></td>
</tr>
<tr>
<td>8. Urgine incontinence, frequency, urgency, nocturia</td>
<td></td>
</tr>
<tr>
<td>9. Painful ejaculation, « prostatitis »</td>
<td></td>
</tr>
<tr>
<td>10. Sexual arousal syndrome</td>
<td></td>
</tr>
<tr>
<td>11. Skin anomalies (cutis anserina...)</td>
<td></td>
</tr>
</tbody>
</table>

**How can we win the war against pudendal neuropathy?**

*Easy evaluation of the main symptoms with the T.A.P.E.*

How can we win the war against pudendal neuropathy ?

Estimated prevalence => very frequent defect

**Pudendal neuropathy**

**Normal => Pathological or Borderline**

- Distortion of the « chassis »
  1. Fall on the coccyx
  2. Impact on the spine or on the pelvis (car or motorbike accident…)
  3. Heavy lifting
  4. Heavy osteopathic manipulation
  5. Traction for lower limbs orthopedic surgery

- Repetitive trauma
  1. Job with long time sitting or wrong sitting position (pianist, programmer…)
  2. Biking
  3. Long car or airplane travels

- Traction on the nerves
  1. Vaginal surgery (retractors)

- Other causes
  1. Polyneuropathy (diabetes, alcool…)
  2. Congenital ??
  3. Vaginal surgery (direct lesion)

**Pudendal neuropathy**

**Flare up hypothesis for pain**

<table>
<thead>
<tr>
<th>Borderline =&gt; pathological</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Longo’s procedure (8 cases of severe perineodynia !)</td>
</tr>
<tr>
<td>2. Bartholin’s cyst surgery</td>
</tr>
<tr>
<td>3. Hemorrhoids surgery</td>
</tr>
<tr>
<td>4. Colonoscopy</td>
</tr>
<tr>
<td>5. Laparoscopy</td>
</tr>
<tr>
<td>6. Vaginal surgery</td>
</tr>
<tr>
<td>7. Others « agressions » in this area</td>
</tr>
</tbody>
</table>

**Venice (Italy), 3rd October 2008**
Pudendal neuropathy
Tracking #1 => three clinical signs

1. Perineal hypo or hyperesthesia (pinprick)
2. Painful pudendal nerve during rectal examination
3. Painful « skin rolling test » of the perineal skin

Pinprick sensibility test
Vulvar Para-Anal

Painful pudendal nerve
(rectal examination)

1. Mild
2. Mild with Tinel sign (irradiation)
3. Moderate
4. Moderate with Tinel sign
5. Severe
6. Severe with Tinel sign

Skin Rolling Test

Validation of the 3 clinical signs of pudendal neuropathy
Control group

82 female patients
mean age: 48,8 years (27-76)
without prolapse
without anal incontinence
without perineodynia
without an history of pelvi-perineal surgery

=> This control group was compared with a group of 74 patients before pudendal nerve decompression
Validation of the 3 clinical signs of pudendal neuropathy (prevalence 20%)

<table>
<thead>
<tr>
<th>Test</th>
<th>Sens</th>
<th>Spec</th>
<th>PPV</th>
<th>NPV</th>
<th>OR</th>
<th>95% CI OR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal sensibility</td>
<td>0.57</td>
<td>0.77</td>
<td>0.38</td>
<td>0.88</td>
<td>4.42</td>
<td>1.99 - 9.82</td>
</tr>
<tr>
<td>Painful pudendal nerve</td>
<td>0.70</td>
<td>0.71</td>
<td>0.37</td>
<td>0.90</td>
<td>5.52</td>
<td>2.51 - 12.15</td>
</tr>
<tr>
<td>Painful skin rolling test</td>
<td>0.55</td>
<td>0.84</td>
<td>0.47</td>
<td>0.89</td>
<td>6.56</td>
<td>2.74 - 15.68</td>
</tr>
<tr>
<td>The 3 (3 neg versus 3 pos)</td>
<td>0.68</td>
<td>0.89</td>
<td>0.60</td>
<td>0.92</td>
<td>16.97</td>
<td>4.68 - 61.51</td>
</tr>
</tbody>
</table>

Beco J, Climov D, Bex M
Pudendal nerve decompression in perineology : a case series.

Pudendal neuropathy Tracking #2 => DPS

Measure of perineal descent with the Perineocaliper ®

1 = anal margin
2 = ischial tuberosity
3 = reference level

Beco J: Interest of retro-anal levator plate myorrhaphy in selected cases of descending perineum syndrome with positive anti-sagging test.

Target population?
1. Patient with one or more symptoms of pudendal neuropathy:
   - perineodynia (pain while sitting, proctalgia fugax, vulvodynia…)
   - urinary incontinence (! Fixed bladder neck !)
   - painful bladder
   - anal incontinence (! Intact anal sphincter !)
   - troubles of the penis, vagina or clitoris sensibility
   - impotence, painful ejaculation, « abacterial prostatitis »
   - sexual arousal syndrome

2. Patient with a perineal descent > 1.5 cm

Frequency of the 3 clinical signs of pudendal neuropathy according to the perineal descent measured with a perineocaliper (n=820)

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How can we win the war against pudendal neuropathy?

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Anatomy of the nerve by MRI

Doppler of pudendal arteries

1. Compression of the artery => compression of the nerve
2. Compression of the artery => erectile dysfunction => pudendal nerve decompression improves vascularisation of the penis

Main differential diagnosis

<table>
<thead>
<tr>
<th>History and clinical examination</th>
<th>Other exams</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Levator plate sagging (DPS)</td>
<td>1. Lombo-sacral MRI and EMG: conus terminalis and sacral roots lesions</td>
</tr>
<tr>
<td>2. Muscle trigger points</td>
<td>2. Ultrasound: perineal descent, rupture of anal sphincter, bladder neck descent, prolapse</td>
</tr>
<tr>
<td>5. Psychological distress</td>
<td>5. Blood sample</td>
</tr>
<tr>
<td>6. Coccydynia</td>
<td></td>
</tr>
<tr>
<td>7. Back mouse</td>
<td></td>
</tr>
<tr>
<td>8. Pyramidal syndrome</td>
<td></td>
</tr>
<tr>
<td>9. Multiple sclerosis or other central lesions</td>
<td></td>
</tr>
<tr>
<td>10. Polyneuropathy</td>
<td></td>
</tr>
<tr>
<td>11. Urological, gynaecological or colo-proctologic disease</td>
<td></td>
</tr>
</tbody>
</table>

Treatment of pudendal neuropathy: curative

Lifestyle changes => protection of the nerve

1. Avoid sitting for long time if it is painful (use special chairs or U-shaped cushions) (S. Antolak M.D.)
2. Avoid biking
3. Avoid heavy lifting
4. Avoid childbirth, prefer cesarian section
5. Treat dyschesia and DPS (! Move back on the toilet seat !)

Treatment of pudendal neuropathy: curative

Physiotherapy

DPS, incontinences and prolapses => contraction
1. Kegel’s exercises
2. Biofeedback
3. Electrostimulation

Perineodynia (pain) => relaxation
1. Manual therapy (J. Weiss)
   - myofacial trigger point release
   - neural mobilization
   - connective tissue manipulation
2. Trigger point injections / dry needling (J. Weiss)
3. Cold laser, TENS, magnets
Treatment of pudendal neuropathy: curative
Infiltration under scanner control
(or ultrasound or electrostimulation or finger control)

Images from JF Biquet M.D., CHC Saint Joseph, Liège

Five surgical procedures

<table>
<thead>
<tr>
<th>Complete decompression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transgluteal (Robert 1990)</td>
</tr>
<tr>
<td>2. Transperineal:</td>
</tr>
<tr>
<td>- with digitoclasy of fascia lunata (Beco 2006)</td>
</tr>
<tr>
<td>- with sacro-spinal ligament section (Shafik 2007)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incomplete decompression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transperineal without « clamp » opening (Shafik 1991)</td>
</tr>
<tr>
<td>2. Trans-ischiorectal (Bautrant 2003)</td>
</tr>
<tr>
<td>3. Laparoscopic (??)</td>
</tr>
</tbody>
</table>

Transgluteal procedure
(Robert 1990)
Incision

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How can we win the war against pudendal neuropathy?


Incision

Complete transperineal decompression (Beco 2006)

With digitoclasy of the fascia lunata
Without section of the ligaments

« Trans-ischiorectal »

(Bautrant 2003)

Incision

Woman
Man

« Trans-ischiorectal »

Levator ani nerve


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Laparoscopic procedure

1. No clinical data available
2. One study on cadavers


Lesion of levator plate or of a nerve close to the sacro-spinal ligament

Sacro-iliac joint instability

Lesion of a nerve in the sacro-spinal lig (Shafik 2007)

Treatment of pudendal neuropathy: curative

Results of surgery

1. Nobody knows which operation is the best !!!
2. Results: 60% on pain, urinary and anal incontinence
3. 3 to 24 months to obtain the final result
4. Possible side effects like increase of pain, incontinences…
5. Specific risks of different approaches:
   - transgluteal: sacro-iliac joint instability
   - transischiorectal: lesion of levator plate or of a nerve close to sacro-spinal ligament

Treatment of pudendal neuropathy: palliative

1. Drugs: Lyrica®, Neurontin®, Rivotril®…
2. Thermocoagulation: pulsed radiofrequency
3. Sacral neuromodulation

Venice (Italy), 3rd October 2008
How can we win the war against pudendal neuropathy?

1. Be open mind; don’t forget to « think pudendal »
2. Complete evaluation of the patient (before and after each treatment)
3. Urgent need for well designed studies for each step of the management (diagnosis and treatment)

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More informations:
http://www.pudendal.com
PODIUM PRESENTATIONS

Outpatient mid-urethral TFS sling operation - a documentary of day surgery in Women’s Clinic LUNA. (1)

Y Sekiguchi, M Kinjyo, H Inoue, H Sakata and Y Kubota

Yokohama, Japan - E-mail: dumbo-ys@dia.dion.ne.jp

The TFS (Tissue Fixation System) is a new “minising” device with a one-way tightening system. We will demonstrate the management of outpatient mid-urethral TFS sling operation in detail in a free-standing outpatient facility.

Materials and Methods: Patients were given hydroxyzine hydrochloride 25mg and atropine sulfate 0.5mg i.m. and diclofenac sodium 50mg p.r. before operation. The operations were performed under local anesthesia (LA), using 1% xylocaine 10ml + physiological saline 40ml+vasopressin 10units. Patients under 70 years were given midazolam 2.5mg additionally. The LA was injected at the sites of the surgery: anterior vaginal wall, peri urethral spaces and below the pubic symphysis, into the tissues behind the perineal membranes (urogenital diaphragm). The mid-urethral TFS sling operation is identical to the first part of a midline ‘tension-free tape’ operation. A full thickness midline incision was made into the vagina from just below the urethral meatus to midurethra. The vagina was dissected off the urethra with dissecting scissors, and the dissection was carried a few millimeters beyond the perineal membrane (urogenital diaphragm), the space created being just sufficient for the passage of the applicator. The applicator was placed into the dissected space, and triggered to release the TFS anchor. The tape was pulled with a short sharp movement to ‘set’ the prongs of the anchor into the tissues. Adequate ‘gripping’ of the anchor was tested by pulling on the free end of the tape. The procedure was repeated on the contralateral side. Taking care to pull in the axis of the anchor’s base, the tape was tensioned over a urethra distended by an 18G Foley catheter just sufficiently without indenting it, and the free end cut. The vaginal hammock fascia and the external ligamentous attachment of the external urethral meatus were now tightened with 2-0 Dexon sutures.

Results: We performed 37 mid-urethral TFS sling operations for “Genuine stress Incontinence” (GSI) proven by pre-operative urodynamic testing. All patients were discharged the same day. Mean operating time including administration of LA was 22.9 minutes (15-43). Mean blood loss was 14.6 ml. Four patients who could not pass urine within 8 hours were discharged with an indwelling Foley catheter, but passed urine normally within 48 hours. Cure rate at 6 months was 91% (34/37). The 3 failed cases were cured with another TFS midurethral sling- inserted at 3 months.

Conclusion: TFS mid-urethral sling operation is a simple effective procedure, and can be done without difficulty in a free standing clinic as an outpatient.

Mechanical aspects of different tapes in incontinence surgery - Are requests according to Amid I classification enough? (2)

A Niesel, A Rohne, M Hanschmann

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Background: Macroporous and monofil tapes are a request for Amid I classified grafts in mesh supported incontinence surgery. There is consensus, that low – weighted materials are preferable. The aim of this study was to evaluate mechanical characteristics of different tapes as they are thought to play an important role in e.g. the causation of erosion and inflammation.

Methods: The physical characteristics of six different tapes (TVT, Uretex, Monarc, Serasis PP, Serasis PA, IVS ) are compared with each other. The subjects are: weight, breaking strength, flexural rigidity, strain, thickness, width with and without tension, pore content, area of the pores and diameter of the threads. Static and dynamic properties were tested under “dry” lab conditions.

Result: All tapes consist of Polypropylen (PP). One graft is a partially resorbable material out of PP, polyglycolacid (PGA) and ε caprolacton (PCL) as components of a monofilament thread. After 120 days PGA and PCL are absorbed. There is a wide range concerning the mechanical characteristics of the different tapes. The partial resorbable tape features low flexural rigidity (8 mg after resorption. Range of other tapes: 3-71 mg) without reduction of breaking strength (80 N. Range: 50-70 N). According to absorption of PGA and PCL the tape looses half of its weight (0.41 g/m², Range: 0.57-1.98 g/m²). The smooth surface allows adjustability until to 48 hours postoperative in preliminary clinical tests.

Conclusion: Beside Amid I category a number of parameters are likely to affect the ability of a synthetic material to act as the perfect graft. A partial resorbable tape is supposed to have advantages like weight reduction, monofilament surface during critical postoperative phase, masking the hydrophobic surface of polypropylene and more softness in the tissue.

Trans obturator tape (TOT) procedure for stress urinary incontinence: results at 4-years follow-up (3)

F Fusco, GA Tommaselli, F Basilica, F Cutillo, P Affinito, M P Arienza, A D’Affiero

Naples, Italy - E-mail: gtommaselli@yahoo.it

Objective: To evaluate the long-term results of transvaginal transobturator tape (TOT) in the treatment of female stress urinary incontinence (SUI). Almost all the studies available in literature report a maximum followup of 1-3 years. Aim of this study is to confirm, on a large sample of patients, that results in term of continence and QoL are maintained over time with a minimum follow-up of 48 months.

Patients and Method: Out of 197 consecutive women, undergoing TOT for SUI between September 2002 and October 2003,
Type 3: contraction of implant (Grade 1: palpation of supportitive implant is painless, retraction moderate and asymptomatic, arm or body of the prosthesis is palpable but not thickened, Grade 2: retraction is moderate (less than about 30%) and/or without many symptoms, palpation may be sensitive, prosthesis globally moderately thickened without nodules, Grade 3: important contraction (more than 50%) and/or painful palpation with localized thickening of the implant, 3A - important contraction, moderate symptomatology, 3B - important and symptomatic contraction, Grade 4: simple contact of implant is painful ++ even if contraction is not always palpable.

Type 4: erosions due to implant erosions: a) of vaginal fornix, b) urethral erosion, c) bladder, d) rectum, e) other distant).

This classification can only be temporary but distinguishes different types of complications too often mixed up in publications.

AAVIS KEYNOTE SPEAKER: DR J. BECO

How can we win the war against pudendal neuropathy? (87)

J Beco

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Background: Pudendal neuropathy is one of the seven main defects in Parry's classification. This defect can induce perinealgia but also gynaecological, urological and coloproctological symptoms. Despite growing evidence of its importance this diagnosis is still rarely made and effective treatments available more rarely used. The aim of this lecture is to improve the management of those patients who suffer from this quite frequent and very aggressive illness.

Methods: To win a war it is necessary to perfectly understand who your enemy is, how it looks like, how you can differentiate it from your other enemies and what are its weaknesses.

Strategy is of uppermost importance. Wrong ways and false friends must be avoided. Because it is a new enemy, changing its look like a chameleon, we must be very open mind and modest to win this war.

Results: Urges and stress urinary incontinences, urgencies, frequency, painful bladder, dysuria, abacterial prostatitis, sexual arousal syndrome, proctalgia fugax, painful ejaculation, impotence, pain while sitting, vulvodynia, anal incontinence, dyspareunia, dyschezia... can be induced by pudendal neuropathy. Don’t forget to think “pudendal”!

Clinical examination is the first and most important part of the diagnosis. Besides the classical examination of the perineum, it is necessary to search at least for the 3 clinical signs of pudendal neuropathy, for an abnormal perineal descent (using a Perineoscope®), for other neuralgias and for pelvic floor muscle trigger point.

EMG with PNMTL, warm and cold detection thresholds, Doppler of the pudendal arteries, MRI of the ischiococcygeal fossae and of the lombo-sacral spine, can be helpful to confirm the diagnosis.

The main steps of the treatment are life style changes, painkillers, physiotherapy (with trigger point treatment), pudendal nerve blocks, surgical pudendal nerve decompression and neuromodulation.

Conclusion: In front of a functional perineal trouble, be open mind; don’t forget to think “pudendal”!

FISTULAS AND FLAPS

Complicated urinary fistula. (88)

B Liedl

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Successful management for complicated urinary fistula starts with sufficient diagnosis of location of the fistula (Ureter, bladder, urethra, rectum or combinations), the underlying causes and accompanied conditions (e.g. post radiotherapy, tumor recurrence, previous surgery, coloproctologic disease) and evaluation of the tissues surrounding the fistula tract. Small vesicovaginal fistulas with sound elastic surrounding tissue usually can be closed transanally: excision of the fistula tract, closing the bladder by inverting sutures, suturing the pubocervical fascia and the vaginal wall by everting running suture with the aim to approximate broad healthy wound planes without tension. If the wound edges cannot be sutured without tension or if tissue defects are present, tissue transfer is necessary. Bladder flaps, interposition of bowel, omentum majus or peritoneal flaps can be helpful. By vaginal route a Martius-flap with skin-island can be interposed. Concomitant lacrations of ureter or rectum will usually need ureter reimplantation or rectal surgery. De-epithelizing and closure of the vagina partially or totally can be an option in old, sexually non active women. Supravesical derivation (Conduit, pouch) are options, if fistula closure is not possible.

Anorectal fistulas and biological prostheses. (89)

R Scherer

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Purpose: In 2006 the anal fistula plug technique was introduced in the treatment of transspincteric anal fistulas. Since the results were encouraging, the technique was adapted to the treatment of rectovaginal fistulas.

The surgical technique and the preliminary results were presented.

Methods: 15 patients with rectovaginal fistulas were included prospectively. When considering the comparison between EAUS and MRI it is worthwhile focussing on exactly what it is that sonography does well. It is well-established that ultrasound generally best images structures that are close to the transducer surface, and the higher the frequency of the transducer, the more this condition will apply. In particular, using modern 16 MHz transducers, EAUS is particularly well-suited to identification of the internal opening, because it usually lies right at the probe surface. Anal endosonography facilitates quick and easy diagnosis of intersphincteric fistulas and abscesses because of the high spatial resolution of the technique. Transspincteric fistulas are revealed by tracks that cross the external sphincter to reach the ischioanal fossa. The further they are from the anal canal, the less-well extensions are visualised by EAUS. This is because the depth of penetration of the ultrasound beam is limited, especially at higher frequencies. Also, EAUS has great difficulty to determine if a collection is supra- or infralevator because the levator plates lies in the same plane as the ultrasound beam. Moreover EAUS cannot reliably distinguish infection from fibrosis since both appear hypoechoic. This causes particular difficulties in patients with recurrent disease since infected tracts and fibrotic scars are frequently combined. Injection of hydrogen peroxide into the external opening may help to clarify the course of patent tracts. The advent of high-resolution three-dimensional EAUS (3D-EAUS), constructed from a synthesis of standard 2D cross-sectional images, promise to improve the accuracy in preoperative fistula classification. When examining an fistulas, the operator can trace the pathway of a tract by reviewing the entire series of ultrasound images reconstructed along all planes desired.

The success of MRI for pre-operative classification of fistula-in-ano is a direct result of its sensitivity for tracks and abscesses combined with high anatomic precision and ability to image in surgically relevant planes. The major advantage of MRI over EAUS is the facility with which it can image extensions (transspincteric,