Levator ani syndrome

A case study and literature review

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BACKGROUND
Although anorectal symptoms are a common problem seen in general practice, general practitioners may sometimes encounter patients presenting with anorectal pain without a detectable cause.

OBJECTIVE
This article discusses a case of recurrent anorectal pain in a young woman due to levator ani syndrome, and the current evidence for treatment of levator ani syndrome.

DISCUSSION
Levator ani syndrome usually presents with recurrent or chronic rectal pain without detectable organic pathology. Digital massage, sitz bath, muscle relaxants, electrogalvanic stimulation and biofeedback are the treatment modalities most frequently described in the literature.

Case study – Ms C

Ms C, a 28 year old registered nurse, attended my clinic because of anal pain for 4 hours. She described that the pain had started shortly after defaecation on that morning and was 'constricting' in nature and 'moderate' in severity. There was no rectal bleeding and no recent change of bowel habit. She denied any previous or recent anal sex. She had had two similar attacks in the past 4 months. She did not consult a doctor with the previous episodes because the anal pain subsided within 2–3 hours. On proctoscopic and per rectal examination, no anal fissure, fistula-in-ano, perianal abscess, haemorrhoids, perianal haematoma, rectal tumour or ulcer could be found. There was mild tenderness at the left side of the rectal canal. I had no idea on the cause of her anorectal pain. I explained to her that no organic lesion could be found. I prescribed oral paracetamol for pain relief and advised her to re-attend if the pain did not improve.

At lunch time that day I picked up a surgical textbook in my clinic and tried to find out more information about this condition. I discovered that the description of a disease called 'levator ani syndrome' (LAS) matched exactly the presentation of this patient:

- **recurrent anorectal pain for 12 weeks without organic causes detected during physical examination**
- **each episode lasts 20 minutes or longer**
- **more common in women, usually younger than 45 years of age.[1]**

The likely cause of LAS is spasm of the levator ani muscles. Sitz baths, muscle relaxant, massage of levator muscles, electrogalvanic stimulation and biofeedback were described as methods for treatment.[1]

The same afternoon Ms C returned to my clinic because of increased severity of the anorectal pain. The pain had become so severe that she was unable to cope with her work. Physical findings were basically the same as those found that morning. I explained the presumptive diagnosis of LAS to her and suggested she try sitz baths and prescribed a short course of diazepam. She accepted my working diagnosis and management plan. I advised her to re-attend if there was no improvement in her pain.

Literature review

Being unfamiliar with this clinical condition, and not sure whether the different treatment modalities suggested in the textbook were based on high level clinical evidence, I decided to undertake a literature review. I searched Medline (www.pubmed.gov) with the key words 'levator

ani syndrome'. Forty-six items were retrieved. I scanned through the abstracts of these articles; 27 were irrelevant. I reviewed the original articles of the 19 relevant items, as well as four relevant original articles listed in the reference section of the 19 articles. Of these 23 articles: nine were academic reviews; six were cohort studies; and eight were case series. There was no meta-analysis or randomised controlled trials in the articles.

Levator ani syndrome is a functional disorder in which recurrent or persistent distressing pain, pressure or discomfort is felt in the region of rectum, sacrum and coccyx that may be associated with the presence of pain in the gluteal region and thighs.[2] The pain is worse on sitting and disappears on standing or lying down.[3] Often no organic pathology is detected clinically.

The diagnosis of LAS is suggested primarily by the clinical history, physical examination, and the exclusion of other disorders that can produce recurrent or chronic proctalgia. A multinational committee on functional anorectal disorders defined the Rome II criteria for diagnosis of LAS in a consensus document on functional gastrointestinal disorders in 1999 (*Table 1*).[4] An important clinical finding is palpable tenderness of overly contracted levator ani muscles as the examining finger moves from the coccyx posteriorly to the pubis anteriorly.[5] A diagnosis of LAS is 'highly likely' if symptom criteria are satisfied and posterior traction on the puborectalis reveals tight levator ani muscles and tenderness or pain; whereas the diagnosis is considered 'possible' if symptoms occur in the absence of physical findings.[4] Often the tenderness is asymmetric and more common on the left side of the levator ani muscles.[2]

The exact cause of LAS is unknown. Thiele[6] perceived the relationship between spasm of the levator ani muscles and pain in the anal area, but used the term 'coccygodynia' (even through he noted that the pain was not in the coccyx but in the muscles which partially inserted into the coccyx). The term 'levator spasm syndrome' was first described by Smith[7] in 1959. Thereafter, the most commonly proposed mechanism of LAS was the spasm of the levator ani muscles.[8–10] The symptoms of LAS may be precipitated by stress, trauma from sitting for long periods of time (eg. long distance travel), childbirth, various surgical procedures (eg. herniated lumbar disc, low anterior resection, hysterectomy), sexual intercourse and defaecation.[3,5] A USA national householder survey of functional gastrointestinal disorders published in 1993 showed the prevalence of LAS in the general population was 6.0% and more common in women.[11] More than half of affected patients are aged 30–60 years with prevalence declining after the age of 45 years. Only 29% of sufferers consult a physician.[4]

Treatment

No single treatment is successful for all patients with LAS. First line treatment is reassurance that attacks are benign and do not indicate cancer or other serious organic disease. A range of treatments have been reported to be effective in the treatment of LAS including digital massage, sitz baths, muscle relaxants, electrogalvanic stimulation and biofeedback. None of these treatments have been evaluated with controlled trials.

According to a review article by Salvati,[3] digital massage of the levator ani muscles, from anterior to posterior, in a firm manner to tolerance at 3–4 week intervals will alleviate symptoms.[3] The affected side if unilateral, or both if bilateral, should be massaged up to 50 times depending on the patient's tolerance. The most frequent reason for inadequate massage is failure to reach high enough in the rectum to palpate the levator.[3]

In a cohort study of 57 subjects (31 patients and 26 controls), sitz baths of 40ºC were found to reduce anal canal pressures in both patients with anorectal problems and in the controls.[12] The efficacy of sitz baths in LAS is uncertain, but they have no harmful effect.

In a case series of 316 patients with LAS, digital massage of the levator ani muscles in conjunction with sitz baths and diazepam, was reported to bring good or moderate pain relief in 87% patients.[2] However, the addictive potential of diazepam decreased the enthusiasm of the clinicians to use it to treat chronic LAS.

Since intermittent levator ani muscles spasm is the most likely cause of LAS, electrogalvanic stimulation was first described by Sohn et al[13] in 1982. The mechanism for pain relief was the induction of spasmodic muscle fasciculation and fatigue in LAS patients by repeated application of a direct electrical current through an intra-anal probe. In this series, the use of high voltage electrogalvanic stimulation of the levator ani muscles produced complete or partial pain relief in 90% of patients. Thereafter, three case series[8,14,15] and one cohort study[16] have shown that electrogalvanic stimulation could attain satisfactory pain control in 40–91% of patients suffering from LAS. None of these studies were controlled. In addition, no follow up was mentioned, except in one study by Hull et al (mean follow up 28 months).[16]

Biofeedback was a treatment modality introduced by some clinicians to train the minds of patients with LAS to relax their levator ani muscles, thereby breaking the spastic cycle. Three cohort studies have shown that biofeedback could achieve pain relief or improvement in 34.7% (follow up period not mentioned),[17] 42.9% (mean follow up 15 months),[18] and 87.5% (mean follow up 12.8 months)[19] of patients with LAS. Again, none of these studies were controlled. No undesirable side effects of electrogalvanic stimulation and biofeedback have been reported in the literature.

A more recent cohort study compared the outcomes of two treatment modalities: local injection therapy of a mixture of triamcinolone acetonide and lidocaine into the maximal tender point of the arcus tendon in the levator ani muscles, and electrogalvanic stimulation therapy. Patients in the local injection group

Table 1. Rome II criteria for levator ani syndrome

At least 12 weeks, which need not be consecutive, in the preceding 12 months of:

- chronic or recurrent rectal pain or aching
- episodes last 20 minutes or longer, and
- other causes of rectal pain such as ischaemia, inflammatory bowel disease, cryptitis, intramuscular abscess, fissure, haemorrhoids, prostatitis, and solitary rectal ulcer have been excluded

showed better results in pain score at the 1 month, 3 months and 6 months follow up. There were no statistically significant differences in pain score between the two therapy groups at 12 months follow up.[20] The better short term result of the local injection therapy suggested that inflammation of the arcus tendons of the levator ani muscles (tendinitis hypothesis) might also have a role in the aetiology of LAS. The authors pointed out that since there was a low subjective response of patients for complete pain relief in both treatment groups, this study could not positively conclude that the tendinitis hypothesis is the more reliable pathophysiology of LAS.[20]

A case series reported that surgical division of the puborectalis muscle resulted in a high incidence of incontinence for liquid or gas,[21] and therefore this surgical treatment should not be recommended due to such an undesirable side effect.

Conclusion

Digital massage, sitz baths, muscle relaxants, electrogalvanic stimulation and biofeedback have all been reported to be effective in treating LAS and cause no harm. However, none of these treatment modalities have been evaluated further with controlled trials. Surgical division of puborectalis muscle should be avoided due to side effects.

Conflict of interest: none declared.

Case follow up

Two days after consultations with Ms C, I telephoned her and enquired about the progress of her anorectal pain. She said that the pain had completely resolved after using sitz baths and taking two doses of diazepam. I explained my proposed future management plan to her: if the symptoms of LAS recur and cannot be controlled with sitz baths and diazepam, I would refer her to a specialist. She agreed with this plan. Ms C did not have further consultation in my clinic in the subsequent 2 months.

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