Introduction

Anal fissure is a common and distressing problem. It is typified by a split or tear in the anal canal which is associated with pain and bleeding on defecation. The etiology and pathogenesis of anal fissure are poorly understood, although it is thought that the primary event is probably local trauma, which leads to anal sphincter spasm with failure of sphincter relaxation during defecation. This results in a cycle of further trauma and spasm, producing pain, bleeding and constipation, typical of the chronic anal fissure (1). An anal fissure may be the result of hypertonicity of the internal anal sphincter. The resting anal canal pressure is raised in patients with chronic anal fissure (2, 3) but it is not known for certain whether this is caused by a primary abnormality or is a secondary response to sphincter irritation. It has been reported that pressure in the anal canal does not fall after the pain caused by the fissure has been relieved by the application of a local anaesthetic to the area, suggesting that the spasm may not occur secondary to pain (4).

The standard surgical treatment for chronic anal fissure is internal anal sphincterotomy (IASy). The aim of this study was to assess the effects of IASy on anorectal pressures in patients with chronic anal fissure.

Materials and method

A total of 28 patients, (15 men and 13 women) who had been suffering from chronic anal fissure for more than three months were studied. The average patient age was 34.3 years (22-48). All patients were hospitalized and the diagnosis of anal fissure was established on the basis of physical examination and anoscopy. After IASy the manometric measurement was repeated on the 15th post-operative day and compared with the value obtained in twelve healthy volunteers.

Results

Anal canal MRP measurements were done in all patients with chronic anal fissure pre-operatively and 15 days following the operation. The mean MRP value was found to be 112.38 ± 8.35 cm H2O pre-operatively and 66.23 ± 8.44 cm H2O postoperatively, with a significant drop after IASy (p < 0.001). The MRP value was found as 75.16 ± 10.22 cm H2O in the control group. The pre-operative MRP values in patient group was found to be higher than in the control group (p < 0.001).

Conclusions

In patients with chronic anal fissure, the anal canal MRP pressures decreased significantly following IASy and complete clinical recovery was attained.
The average hospitalization period was 2.3 days (2-5 days) and ecchimosis was observed in only one patient postoperatively (3.6%).

Complete cure was observed 15 days after the operation in 21 patients and after 30 days in the remaining 7 patients. Healing was confirmed by complete resolution of the patients symptoms together with re-epithelialization of the fissure observed by anoscopy.

On physical examination in the third month follow-up, all patients were symptom free and without any clinical recurrence.

Discussion
An idiopathic anal fissure is a tear of the anoderm in the anteroposterior midline, which will become an ulcer over time. Inflammatory bowel disease causes fissuring anywhere around the anal canal and should not be confused with idiopathic anal fissure. An anal fissure may be the result of hypertonicity of the internal anal sphincter. A resting pressure elevated to almost twice normal has been documented in patients with anal fissure (2). The fissure is accompanied by searing, tearing pain in the anal canal during a bowel movement followed by a dull ache or tightness lasting several hours. Alternatively, the anal fissure may cause the increased resting pressure. There have been no studies of patients with idiopathic elevated resting pressures to document the incidence of fissure formation in that setting. It has been reported that pressure in the anal canal does not fall after the relief of pain by the application of a local anaesthetic to the fissure area, suggesting that the spasm may not be secondary to pain (3). The current theory on fissure formation is that there is less pliability of the anal skin in the anteroposterior midline where almost 100% of non inflammatory fissures occur (5). Stretch during passage of a firm stool or of normal stool after diarrhoea, seems to be the preceding event in most cases. A fissure fails to heal and eventually becomes an ulcer. The poor healing may be attributable to ischemia secondary to spasm of the internal sphincter (2). Contrary to these findings, there were also some reports on patients with anal fissures having sphincter pressures within the normal range. This could be due to methodical differences in anal canal pressure measurements (6, 7).

Clinically, there is a clear symptomatic distinction between chronic and acute anal fissures. Nearly 50-70% of acute fissures will heal spontaneously or in response to medical management, whereas chronic anal fissures usually require IASy (8, 9). The surgical reduction of anal canal pressure with IASy, results in the healing of most chronic anal fissures. Although reversible chemical sphincterotomy using topical 0.25% glyceryl trinitrate, botulin toxin injection, topical nitric oxide and a long acting local anaesthetic injection can also cause a decrease in anal sphincter pressure, these treatments are associated with a significant risk of recurrence and side effects (10, 11, 12, 13).

Because of these pitfalls, IASy is the preferred treatment for chronic anal fissure (14). The factors related to the healing of chronic anal fissure are not completely known. It has been suggested that IASy permanently lowers MRP. The reduction in sphincter pressure could enhance mucosal perfusion, giving immediate relief of ischaemic pain and promoting rapid healing by lowering MRP (2, 15).

In conclusion MRP was found to be increased in patients with chronic anal fissure with a significant decrease following IASy. For this reason, IASy seems to be the most effective, safe and simple method compared with its alternatives.

References

Dr. B. Aytaç, M.D.
79.sok. 2/16
Yeditepe Blokları
Emine Mahallesı
Ankara-Turkey
Tel. : +90 312 223 01 95
Fax : +90 312 434 02 57