**INTRODUCTION**

Anal fissure is a linear or oval-shaped tear in the anal canal starting just below the dentate line extending to the anal verge. It was first described in 1934 by Lockhart-Mummery. Anal fissures can be acute or chronic. Acute fissures are a shallow tear in the anoderm. Symptoms associated with acute fissures include anal pain, spasm, and/or bleeding with defecation. Chronic fissures are considered to be acute if they have been present for less than 6 weeks, and/or bleeding with defecation. Chronic fissures are considered to be chronic if they have been present for more than 6 weeks and have keratinous edges, if there is a sentinel node and hypertrophied anal papillae, and if the fibers of the internal anal sphincter are visible. Anal fissure is a linear tear in the anoderm distal to dentate line which is considered most common proctologic condition. Anal fissure is generally located in the posterior midline. The symptoms include anal pain, spasm, and/or bleeding during defecation. The pain can be so severe as to induce the patient to avoid defecation with consequent hardening of the feces and exacerbation of the problem. Management of the anal fissure is improving diet and defecation habit, medical therapy and surgical therapy. The goal of medical treatment for chronic anal fissure is to temporarily reduce pressure of the anal canal to facilitate the healing of the fissure ("reversible sphincterotomy"), thereby reducing muscle tone. Various mechanisms can be used: increasing NO (nitric oxide), stimulation of muscarinic receptors, inhibition of alpha-adrenergic receptors, or stimulation of beta-adrenergic receptors. Botulinum toxin (BT) is an exotoxin produced by the bacterium *Clostridium botulinum*. When injected locally the toxin binds to presynaptic nerve terminals at the neuromuscular junction, thereby preventing release of acetylcholine and resulting in temporary muscle paralysis. In 1993, Jost and Schimrigk first reported injecting BT directly into the anal sphincter as new mode of treatment for anal fissure. Some studies mentioned that over 1,000 patients treated with BT and none of their patients had systemic complications or severe side effects. Other studies by Shao et al concluded that lateral...
internal sphincterotomy was more effective than BT injection for healing chronic anal fissures. Recurrence rates were also higher in the BT group. Injection into the internal anal sphincter allows healing in 60 to 80% of fissures. Recurrences may occur in up to 42% of cases.9 The most common side effects are temporary incontinence to flatus in 18% and stool in 5%. Injections of BT have led to perianal hematomas in 20% of patients and rare cases of perianal thrombosis.10

CASE REPORTS

Case 1: A forty-three-year-old male complained of pain in his anus since three weeks prior to admission. The pain get worsened during defecation. The diet usually low fiber and the patient usually defecate every 3 to 5 days with hard stool. The patient was afraid to defecate because of pain. During examination we found a crack at posterior midline. We performed Botulinum toxin type A (100 unit Allergan*) and injected it into three sites 2, 5 and 7 o’clock of the internal sphincter using a 1 mm syringe needle. The patient was educated to take a high fiber diet and sufficient water intake and get a stool softener. The symptoms were relieved in 1 week after the treatment. There were no complications during follow-up 8 months after treatment, no sign of incontinence and recurrence.

Case 2: A thirty-seven-year-old male complained of pain in his anus and bleeding during defecation since a week before admission to hospital. The patient started when the patient defecated During examination we found 2x1 cm crack at posterior midline. We perform Botulinum toxin type A (100 unit Allergan*), injected into three sites of the internal sphincter using 1 mm syringe needle at 2, 5 and 7 o’clock. The patient was advised to take stool softener. The symptoms were relieved in 2 week after the treatment. During 1 year follow-up, no complaints and relapse were detected.

DISCUSSION

Some studies have evaluated the dosing of BT and the injection site. Brisinda and colleagues randomized 150 patients to initial treatment with 20 U Botulinum Toxin followed by 30 U Botulinum Toxin for fissure persistence, or initial treatment with 30 U of Botulinum Toxin followed by 50 U Botulinum Toxin for persistence.11 The dose and site of BT injection have not been standardized. Injection into or on either side, close to the fissure has been described, but local fibrosis and scarring may reduce the effectiveness. In fact, up to eight injection sites have been described, but most studies use bilateral injections. A single unilateral injection into this sensitive area was thought to be more tolerable for patients than two injections. However, in the present study there was no significant difference in injection-related pain in the two groups. From our observations, we injected the Botulinum Toxin in three sites using 1 mm syringe needle at 2, 5 and 7 o’clock. No pain was recorded during and after the procedure.12

One month after Botulinum Toxin injections, greater success was noted with higher doses, with little increase in complications or side effects, likely related to the diffusion of the toxin to the external sphincter.13 A study by Maria et al. evaluating the location of Botulinum Toxin. They found that injection on either side of the anterior midline lowered anal resting pressures and resulted in higher healing rates than injection of Botulinum Toxin on either side of the posterior midline.11 A high percentage of recurrence (40–55% at 3–4 years) and a significant incidence of adverse events such as fecal incontinence (10%), hematomas, and subcutaneous infections are described after treatment with botulinum toxin. In these patients, the fissure relieved within 1 month, no recurrence and complication were recorded during 8 months and 1 year follow up. Furthermore, there is insufficient data on long-term efficacy.13,14

CONCLUSION

Botulinum toxin therapy is one of the non surgical treatment for anal fissure. The dose and the injection location are not established yet, but it can be considered efficacious, effective, and safe treatment.

ETHICAL STATEMENT

Patient had received signed written informed consent regarding publication of this article in scientific medical journal.

CONFLICT OF INTEREST

None.

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REFERENCES


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