THE ADMINISTRATION OF SPINAL OR LOCAL ANESTHESIA IN ANAL FISSURE AND HEMORRHOIDECTOMY: A COMPARATIVE LITERATURE REVIEW

Abstract :

The purpose of this review is to consider the risks, benefits, and prospective benefits of spinal and local anesthetic. Comparing the safest and most suitable anesthetic to utilize with each surgical technique also helps. An extremely sensitive area of the human body is the anorectal region. Although it is normally shorter than the remainder of the gastrointestinal system, measuring between 2.5 and 4 cm, it is extremely complex physically and functionally. The anal canal's only purpose is to serve as a link between the rectum and the digestive system. It is crucial for maintaining fecal continence and safeguards the body against foreign bacteria that may utilize the rectum as a possible entrance point into the anal canal. Anorectal anal fissures are a typical, benign disorder. It is an extremely painful disease that, in certain extreme situations, may also cause per rectal hemorrhage. Usually an ulcer, it develops longitudinally in the anus's epithelial lining immediately distal to the dentate line. A fissure-in-ano is characterized by indurated margins, visible internal anal sphincter fibers, and a polyp or skin tag close to the fissure's distal end. Hemorrhoids are little clusters of arteriovenous, fibrovascular, and submucosal sinusoids that are located in the anorectal area. Hemorrhoids are shown to be related with new per rectal bleeding in the patients shortly after they defecate, which is a highly distinctive pattern. In circumstances where medical therapy is ineffective, surgery has been suggested for both of these disorders. Any time surgery is scheduled, the question of selecting anesthetic arises. Although both local and spinal anesthesia are advised, studies and expert views

have shown that local anesthetic has a clear advantage over spinal anesthesia. It is a popular option for many surgeons since it is successful in terms of the patient's health and is also economical.

Keyword: Local anesthesia, anal fissure, hemorrhoidectomy, anorectal region, gastrointestinal tract, rectum.

INTRODUCTION

The anorectal region is a very sensitive region of the human body. Although it has a typically shorter length than the rest of the gastrointestinal tract at about 2.5 cm to 4 cm, it is structurally and functionally very complex. The function of the anal canal is simply to act as a bridge between the rectum and the gastrointestinal tract. It plays an important role in fecal continence and at the same time, it also protects the body against invading microorganisms that might use the rectum as a possible pathway to gain entry into the anal canal. (1)

While running away from the gastrointestinal tract towards the rectum, there comes a point of transition, where the anus and the rectum meet. This is the ‘anorectal junction’ or the ‘anorectal ring’ and it is seen to assume a bent form in the entirety of the gastrointestinal tract. It is at the anorectal junction where the muscle fibers of both the sphincters meet and blend in superiorly with the puborectalis muscle. (2)

It is because of the delicate nature and the sensitivity of the nerve fibers, muscle fibers, and other features that make the anorectal junction a predisposed site for the development of several benign diseases and conditions. Although the diseases and conditions that develop within this region are mostly benign, there is always an increased pain intensity associated with these

conditions, which makes it difficult for the affected individual to live with them, thus rendering the need for prompt management and treatment.

Among the various benign anorectal diseases, the development of anal fissures and hemorrhoids has been found to be one of the most prevalent issues in this region. It was seen that approximately 8% of the people in the United States suffer from an anal fissure and its related problems, whereas 4% of people develop hemorrhoids during their lifetime. (3) The pathogenesis behind the development of both these conditions is not exactly well-known and therefore, the causative factors are usually said to be related to the changes in connective tissue, hemodynamic status, and other age-related changes that occur in an individual as they grow older and more susceptible to developing such conditions. In some people, trauma or injury to the anorectal region was also found to be responsible for causing this. However, in the majority of people (typically 25-50%), this trauma is caused due to the passage of hard stools or diarrhea that occur as a consequence of chronic constipation which is a common feature in these patients. (4)

Once a patient has been diagnosed as having anal fissures or hemorrhoids, the next step is to manage either of these conditions. The first line of treatment is to keep the patient on supportive or conservative management, and nearly half of the patients benefit from this mode of treatment. For the others who are refractory to this mode of treatment or have a very advanced form of the disease, surgical methods are employed. Hemorrhoidectomy and Lateral Internal Sphincterectomy are considered the preferred modes of surgery for hemorrhoids and anal fissures, respectively. (5)

It is seen that for hemorrhoidectomy, either local or spinal anesthesia is preferred, whereas, for lateral internal sphincterotomy, spinal or general anesthesia is preferred. All the modes of anesthesia are at the discretion of the surgeon and also depend largely upon the patient's

underlying co-morbidities and other factors that make them an ideal candidate for either type of anesthesia. (6)

This review aims to reflect upon the safety, efficacy, and potential risk factors associated with both - local and spinal anesthesia. It also works to compare which mode of anesthesia is safer and more appropriate to use with each surgical method.

CURRENT TRENDS FOR THE SURGICAL TREATMENT OF ANAL FISSURES AND HEMORRHOIDS

Based upon the latest guidelines published and after viewing the patient's factors that are not allowing them to stick to the conventional non-surgical methods, it has been overviewed in the preceding sections regarding which method to go forward with, when this happens. Usually, it is because of the non-compliance of the patient to the methods of treatment that have been prescribed to them. In other cases, it might be due to a poor response of the patient towards their treatment, which could again, be due to several reasons, pertaining to both the patient and any underlying conditions, if they have any.

For a better understanding of the whole ordeal with local and spinal anesthesia in patients with anal fissures or hemorrhoids, it is better to understand the current modes of treatment that have been approved for either of these conditions.

Anal Fissures - Lateral Internal Anal Sphincterectomy

Anal fissures are a common, benign condition of the anorectal region. It is a very painful condition, which is often accompanied by per rectal bleeding in some severe cases. It is typically an ulcer that occurs linearly in the epithelial lining of the anus, just distal to the dentate line. When a fissure-in-ano develops, it is seen to have indurated edges, visible fibers of the internal anal sphincter, and a polyp or skin tag near the distal end of the fissure. (7)

Although there are many conservative management options for anal fissures, lateral anal sphincterotomy (LAS) is considered to be the definitive, gold-standard treatment option. The non-surgical methods for treating anal fissures include altering the dietary habits of the affected individual, the topical application of Dilitiazem, or injecting the sphincter with Botulinum toxin. However, in patients who might be refractory to this treatment method or do not respond as effectively as the other patients to this treatment, lateral anal sphincterotomy is considered to be the gold standard treatment for them. (8)

A lateral anal internal sphincterotomy is a procedure that could be performed both under local or spinal anesthesia. It provides rapid symptomatic relief to patients suffering from this condition and is seen to have a success rate of up to 95%. However, internal anal sphincterotomy is only indicated when the patient does not respond in any way to the medical treatment plan for about six weeks. (9)

In this technique, the fissure or the hemorrhoid, or both in some cases, are identified in the patient. Once this has been achieved, either of them is excised and the leftover anal mucosa is approximated with the help of an absorbable suture. The incision that was done is left open to heal by secondary intention.

The only complication that is associated with and is often feared in patients undergoing lateral anal sphincterotomy is anal incontinence. However, it greatly depends upon the technique used for this surgery and usually is seen to resolve in all patients. (10)

Now, as far as the treatment of choice is considered for patients undergoing anal sphincterotomy, it is seen that local anesthesia could be beneficial over spinal anesthesia when evaluated in terms of the patient. Some factors that make it beneficial over spinal anesthesia are a shorter downtime,

shorter hospital stay, and the act that the whole procedure could then be considered as an outpatient procedure and could very much be performed in the surgeon's room as well.

However, when viewed in terms of surgical outcomes, it was seen that apart from the fact that local anesthesia is superior over spinal aesthesia here, the chances of recurrence with local anesthesia are far more than that with the latter. However, recurrence of anal fissures only occurs if the surgeon is not experienced with their technique or if the method of incision used is not correct. If both these causes are excluded, then local anesthesia indeed provides a greater, more cost-effective, as well as safer alternative to spinal anesthesia. (11)

Moreover, when done under local anesthesia, the internal sphincter is seen to stay in a state of spasm instead of being relaxed. This helps in approximating the length of the sphincter and thus, has a greater benefit. This does not happen under spinal anesthesia.

However, despite these obvious differences, at the end of the day, it is always up to the surgeon to keep the benefit of the patient in consideration before opting for any mode of anesthesia.

Hemorrhoids - Hemorrhoidectomy

Hemorrhoids, also known to laypeople as 'piles' are another prevalent disease of the anorectal region. They are more common in the occurrence than anal fissures. In the majority of the people who develop this condition, it was seen that chronic constipation was the leading cause. (12)

Hemorrhoids are small collections of submucosal, arteriovenous, and fibrovascular sinusoids that comprise a part of the anorectal region. In a very characteristic pattern, hemorrhoids are seen to be associated with fresh per rectal bleeding in the patients soon after their defecation.

Hemorrhoids are also seen to be associated with severe perianal irritation and itching, mucosal discharge from the rectum, and severe pain. If the hemorrhoids are in their early stages, they usually bulge out when defecating and go back inside the rectum once the person is done.

However, in more advanced stages of the disease, the hemorrhoids are seen to remain prolapsed outside the rectum and do not get reduced even after defecating. (13)

Over all these years, there have been many propositions made regarding the treatment of choice for hemorrhoids. Since they are a prevalent problem in both males and females, research is always going on to prescribe the method that works best for both genders.

Just like in anal fissures, it is first recommended that the patient must be given a trial with medications and other supportive measures to take care of their problem. Dietary and lifestyle modifications are undoubtedly the first advice for such patients. A diet that is high in fiber and water content and low in fats of all kinds is the diet of choice that helps resolve complaints of chronic constipation, thus ensuring softer stools. (5)

Earlier, sclerotherapy used to be a technique that was used for treating hemorrhoids, but it has been widely replaced by band ligation. Band ligation is a day procedure that hardly takes about half an hour to get completed. However, this technique is now reserved for Grade I and II hemorrhoids that relapse once defecation has been achieved. (14)

For advanced stages or Grades III and IV of hemorrhoids, it is established that an appropriate surgical method would be employed. In the case of hemorrhoids, the only preferred mode of treatment is open hemorrhoidectomy. It is also done on those patients in whom the medical treatment has failed to yield the targeted results.

Hemorrhoidectomy could be both open (Milligan-Morgan) or closed (Ferguson). Both techniques are different, however, the open method is preferred over the closed one. Hemorrhoidectomy is considered to be a very painful procedure in general. For this reason, many surgeons prefer getting this surgery done under regional or general anesthesia instead of opting for a local one. (15)

The name ‘open hemorrhoidectomy’ is given because the wound is left open once the hemorrhoids have been excised. The opposite happens in closed hemorrhoidectomy. The reason for leaving the wound open varies, sometimes it is done to prevent the wound from getting infected while at other times, it is done because the location of the hemorrhoids made it difficult for the wound ot get sutured afterward. Although considered to be for the patient’s benefit, this technique often leaves the patient with more post-operative pain than the other techniques. (16)

However, when the topic comes to comparing which type of anesthesia suits this mode of surgery, there is always a debate between spinal or saddle ad local anesthesia. The patient-related factors that were earlier discussed in the anal fissure section apply to this section as well, since shorter recovery time, less downtime, and cost-effectiveness are some factors that all patients prefer in any case. (15)

However, from a medical point of view, it is seen that when local anesthesia was used by giving peri-anal and anal canal blocks, an appropriate depth of anesthesia was achieved. Along with that, excellent anal canal relaxation was achieved, which provided excellent adequacy when operating on the anorectal site. However, spinal anesthesia, on the other hand, was seen to give rise to urinary retention in about 17% of the patients, thus increasing the incidence of complications that arise due to it. (17)

Moreover, since local anesthesia was given through lignocaine, it was seen that bleeding was lesser due to the vasoconstriction effect. The same applied to the rate of complications that were significantly lesser in patients who had undergone local anesthesia for his procedure.

CONCLUSION

The anorectal region is a very delicate and sensitive region of the human body. Since it is in a compromised state already, it is often seen to be the site where several pathologies develop. Anal fissures and hemorrhoids are two of the most common pathologies that develop in this region. They are accompanied by severe pain and discomfort to the patient and are uncomfortable to the extent that immediate treatment is often recommended in some cases.

The surgical treatment for both these conditions has been recommended in refractory cases. Whenever surgery is going to take place, the issue arises with the choice of anesthesia. Both local and spinal anesthesia is recommended, however, through research and expert opinions, it has been found that local anesthesia has an obvious upper hand over spinal anesthesia. It is effective both in terms of the patient's health and cost-effectiveness, thus making it a preferred choice for many surgeons.

Compared with SA, LA may be associated with significantly lower post-operative pain, need for rescue analgesia, urinary retention, and headache making it an attractive choice of anaesthesia in day-case surgery for those who are not either fit for GA or refuse such anaesthetic modality.

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