ORIGINAL ARTICLE

HAEMORRHOIDECTOMY USING PUDENDAL NERVE BLOCK AND LOCAL INFILTRATION

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ABSTRACT

Background: Haemorrhoidal disease is a common anorectal condition. The aim of this study was to evaluate the results of pudendal nerve block for conventional open haemorrhoidectomy and compare the results with general anaesthesia.

Methodology: It was a descriptive study carried out in the Department of Surgery Saidu Teaching Hospital, Shah Medical & Surgical Hospital and New Modern Surgical Hospital, Swat, from January 2005 to December 2008. Pre and postoperative data of 243 patients, age range 28-68 years, was analyzed to establish the effectiveness of pudendal anaesthesia with local infiltration of piles. Patients were divided into two groups. Group-I included 122 patients operated with pudendal nerve block & local infiltration anaesthesia and Group-II included 121 patients operated under general anaesthesia.

Results: Postoperative symptoms like pain, heaviness, bleeding, constipation, prolapse, mean operating time, duration of hospital stay, return to normal working activities and 6 months evaluation were compared between the two groups. Results of Group-I were better than Group-II.

Conclusion: Pudendal nerve block anaesthesia with local infiltration of skin and subcutaneous tissue is effective in performing open haemorrhoidectomy. This can be used as alternative anaesthesia in patients who are unwilling or unfit for other forms of anaesthesia.

KEYWORDS: Haemorrhoids, Haemorrhoidectomy, Pudendal nerve block.

INTRODUCTION

Haemorrhoidal disease is a common anorectal condition. They are classified as external or internal depending on their origin i.e. below or above the dentate line and both types may thrombose. The treatment of hemorrhoids depends on the origin and grade. Its aetiology includes straining at defecation, low residue diet, sphincter damage, pregnancy, constricting cancer, portal hypertension, aging and weakness of muscles supporting veins, constipation, prostatism, sitting or standing for long time, hereditary predisposition, obesity, lifting heavy weights over a long period, repeated diarrhoea and dysentery and a habit of suppressing the urge to defecate or flatus passing.[1-5]

The pathophysiology includes, increased maximum resting anal pressure, intrinsic weakness in the blood vessel wall, excessive arterial blood flow, secondary obstruction of outflow and increased intra abdominal pressure but its exact pathophysiology is not clearly understood.[6,7]

There are many treatment options available depending on the degree of the haemorrhoidal disease. Nevertheless, the best treatment is prevention, by avoiding constipation, intake of high fiber diet, adequate fluids and administration of bulk laxatives.[8-10] Non-surgical treatment modalities such as rubber band ligation, injection sclerotherapy, photocoagulation, cryosurgery, infrared coagulation, laser therapy, botulinum toxin injection and herbal chemical cauterization are well established and acceptable to patients. However they are not suitable for all grades of piles and have recognized complications.[11]

Conventional open surgery is used mostly for 3rd & 4th degree piles,[12] however it is associated with considerable postoperative pain. The attempts to reduce pain following hemorrhoidectomy have included alterations in surgical techniques and modifications in perioperative treatment regimens. Technical modifications to reduce postoperative pain has included the addition of lateral internal sphincterotomy,[13] closed hemorrhoidectomy,[14] diathermy hemorrhoidectomy[15] and the use of anal sphincter relaxants[16] or metronidazole[17] as well as transverse mucosal prolapsectomy using a circular stapling device.[18]

Milligan-Morgan open hemorrhoidectomy is the most commonly used technique and is considered one of the most effective surgical treatment.[19-23] Patients who have undergone hemorrhoidectomy, regardless of the technique

used, usually experience immediate postoperative pain.[10,15, 24-25]

Pudendal nerve is derived from S2, S3 and S4 nerve roots. It is the largest nerve of pudendal plexus. It courses between the sacrotuberous and sacrospinous ligaments to reach the perineum. It leaves the pelvis through the greater sciatic foramen, crosses the ischial spine medial to the pudendal vessels and goes through the lesser sciatic foramen. It crosses upward and forwards along the lateral wall of the ischiorectal fossa, in Alcock's canal, a sheath of obturator fascia. It gives off the inferior rectal nerve supplying the external anal sphincter and the skin around anus, perineal nerve supplying the skin of scrotum or labium majus and small twigs to muscles, dorsal nerve of the penis or clitoris, the medial and lateral posterior scrotal or labial nerves and the visceral branches supplying the rectum and bladder are other branches. Some areas of the perineal and vulval skin are innervated by the ilioinguinal, genitofemolal, posterior femoral cutaneous nerves and by cutaneous branches of S2-S4.[26-27]

Pudendal nerve block is performed transperineally in the lithotomy position. Injection of 5-10 ml of local anesthetic is carried out percutaneously just posterior to the ischial spine at the attachment of sacrospinous ligament. Ischial spine can be palpated transrectally or transvaginally. Pudendal nerve block is often combined with perineal infiltration of local anesthetic. Spinal Koback needle is used. After placing the needle (transvaginally or transperineally) underneath the ischial spine on each side, the needle is advanced 1-1.5 cm through sacrospinous ligament and 5-10 ml of 1% lignocaine or, 2% chloroprocaine is injected. Sacrospinous ligament can be palpated and its junction with the spine may be taken as landmark and the finger serves as guide. The needle is passed lateral to the finger through the ligament for 1 cm until a loss of resistance is appreciated. The tip now lies in the area of the pudendal nerve. As pudendal vessels are closely associated so after aspiration, 5-10 ml of local anaesthetic solution is injected. The block is repeated on the other side. Right index finger is used for the right and left for the left pudendal nerve, inside vagina or anal canal. Complications include unintentional sciatic nerve block, intravascular injection, retroperitoneal hematoma and retropsoas or subgluteal abscess.[28]

The aim of this study was to evaluate the results and effectiveness of pudendal nerve block anaesthesia administered to patients for conventional open haemorrhoidectomy and to compare the results with open haemorrhoidectomy performed under general anaesthesia.

MATERIAL AND METHODS

Patients who presented with hemorrhoids over a period of 4 years between January 2005 and December 2008 were included in the study. Informed consent was taken from all the patients.

Those having degree 3rd and 4th hemorrhoids were included in the study. Patients with concomitant anal disease like anal fissure, incontinence, abscess, dermatitis, perianal fistula, crohn's disease, ulcerative colitis, rectal cancer, patients on oral anticoagulants, previous anal surgery and American Society of Anesthesiologists grade III and IV were excluded.

Patients were divided into 2 groups: Group-I (G-I) received pudendal nerve block with local infiltration, while Group-II (G-II) general anaesthesia.

A detailed history was taken from all patients. Apart from general physical and systemic examination, local examination including inspection, digital rectal examination, and proctoscopy was performed. Flexible sigmoidoscopy or colonoscopy was added when there was concern about the cause of symptoms. (Hemorrhoids, which are not prolapsed or thrombosed, can not be felt with examining finger and can only be diagnosed with the help of a proctoscope while it is withdrawn).[29] Blood specimen was obtained for full blood count, urea, electrolytes and glucose.

All patients were given phosphate enema at least 3 hour before operation and they were advised to use toilet as and when the urge arises preoperatively.

Patients in G-I (n=122) were put into lithotomy position. They were given 3-5 ml of midazolam (with anexate antidote in hand). Pulse oximeter was attached and monitored. Oxygen by nasal spectacle was instituted. Using right finger for the right pudendal nerve and vice versa as guide, 7-8 ml of 1% lidocaine was injected around the two pudendal nerves. Skin and subcutaneous tissue infiltration with the same strength anaesthetic was also done. Patients were left untouched for 4-5 min till anaesthetic worked.

Manual dilatation of anus was carried out in all cases to reduce anal canal pressure and stretch tight fibromuscular fibres.[30] After anal dilatation, the haemorrhoidectomy as described by Milligan et al,[31] was performed and the operative time was recorded.

All patients were advised to take fluid diet for 7-10 days postoperatively. A local anesthetic gel (lidocaine 2% w/v) was used into the anal canal to minimize pain during defecation. Twice daily sitz bath were given to the patients for the first few days.[32]

G-II patients (n=121) with general anesthesia received routine standard general anesthesia with tracheal intubation. Rest of the procedure was the same.

The postoperative period was divided into an immediate period of 4 weeks and a later review at 3 and 6 months.

Patients were instructed to take nimesulide. A linear analogue pain scale from 0-10 was used to evaluate pain, where 0 corresponds to no pain and 10 to the worst pain imaginable. The results of the analogue scale were subdivided into 4 groups. Absence of pain (0), mild pain (1-3), moderate pain (4-7), severe pain (8-10).

Similar scoring system was adopted for evacuation, constipation, incontinence, heaviness, pruritis and discharge.

After the operation patients were discharged from hospital when free from severe pain requiring intramuscular analgesia regardless of whether the evacuation had occurred or not. Nearly all patients were discharged on next morning.

Bleeding severity was assessed by the number of bleeding episodes per day over a given week, postoperatively. Bleeding was considered severe if it occurred more than 5 times per a week, moderate 3-5 times a week and mild less than 3 times per week.

Time to resumption of normal working activities was also recorded.

Persistent symptoms of prolapse, pain, bleeding and patient dissatisfaction denoted failure.

Z-Test was applied for statistical analysis.

RESULTS

Two hundred and forty-three patients were included in the study. Among these 154 were males and 89 females. (Table 1)

Table 1: Sex distribution of patients.

Sex	Group-I	Group-II	Total
Males	81	73	154
Females	41	48	89
Total	122	121	243

Initial baseline assessment included, duration since 1st episode, constipation, obesity, pregnancy, anemia, hypertension, use of local anti-haemorrhoidal agents and laxatives. (Table 2)

Table 2: Preoperative symptom assessment.

Symptom	Group-I (n=122)	Group-II (n=121)
Duration since 1st episode:		
<1 year	85 (69.67%)	81 (67.0%)
1-2 years	20 (16.40%)	25 (20.66%)
>2 years	17 (14.0%)	15 (12.39%)
Constipation:		
Present	80 (65.57%)	76 (62.80%)
Absent	33 (20.0%)	35 (29.0%)
Change in bowel habits	09 (7.37%)	10(8.26%)
Anaemia	32 (26.22%)	35 (29%)
Obesity	07 (5.73%)	10 (8.26%)
Hypertension	16 (13.10%)	13 (10.74%)
Laxative use	46 (37.70%)	50 (41.32%)
Local anti-haemorrhoidal agent use	76 (62.30%)	69 (57.0%)

Mean operating time was 9.2+4.0 min in G-I, and 13.2+3.2 min in G-II.

All patients received analgesia in the postoperative period. This consisted of intramuscular ketorolac (Toradol) during hospital stay and oral nimesulide after discharge.

Patients in G-I complained of moderate pain for a median of 3.2 days as compared to 4.2 days in G-II. None of the patients complained of severe pain.

Patients were discharged when they no longer required intramuscular analgesia. Postoperative stay was longer in G-II patients as compared to G-I. Four (3.27%) in G-I as compared to 5 (4.13%) in G-II stayed longer than 24 hours due to severe pain.

All patients had normal continence before surgery and none of the patients in either group had incontinence as a result of surgery. Constipation remained a feature postoperatively, in 4 (3.27%) patients in G-I, and 7 (5.78%) in G-II. At 4 week follow up no anal stenosis or loss of anal tone was identified.

For patients of working age, 52 (42.62%) in G-I, and 47 (38.84%) in G-II, the length of absence from work was recorded. Patients in G-I resumed

normal activities after a median of 6.4+4.2 days as compared to 6.9+4.4 days in G-II.

After a period of 6 months, 2 (1.63%) patients in each group reported rare prolapse. No frequent episodes were reported in either group. One patient out of the 2 in G-I had a single pile at secondary position, while second patient in G-I and the 2 patients in G-II had no piles and only skin tags were there which the patients took for piles. Only reassurance was given to them.

Episodes of bleeding were reported in 8 (6.61%) patients in G-I, and 9 (7.43%) patients in G-II.

DISCUSSION

Pudendal nerve block anaesthesia with local infiltration has been used for many years and is the safest and easiest to administer with few avoidable complications. Little has been written in the textbooks of surgery and anesthesiology as well as published in the world reputed medical journals about this technique. Similarly most of the anesthetists are not familiar with this form of anesthesia except for those who advocate it for some obstetric conditions.[33] On the other hand hemorrhoids are very disabling for the patients and their recurrent attacks are frequent. The inflammation associated with acute crisis, involving enzymatic activity, free radicals and inflammatory mediators lead to pain and bleeding.[34] For patients with hemorrhoids unwilling or unfit for other forms of anesthesia, pudendal block anesthesia with local infiltration may be employed with good results and patient tolerance.

Our study is of 4-year duration with 243 patients. Patients with Pudendal block placed in Group1 were122. Clinically there was no significant difference in between the two groups. All the above results show the Pudendal block anesthesia with local infiltration, if properly administered has excellent results with regard to patient tolerance, postoperative outcome and cost effectiveness. The results are comparable to a study comparing Caudal anesthesia and General anesthesia for hemorrhoids.[35] Our results are even better in respect to postoperative pain, operative time, duration of in hospital stay, postoperative functional results, return to normal working activities and long term (6 months) results.

Our Reaearch is supported by a studies of Torre & Nicolai,[36] and Kushwaha et al.[37] The results of a study by Gerjy et al[38] who performed stapled haemorrhoidopexy under local and general anesthesia also support our study.

The procedure is new for use in anal and perianal conditions. Surgeons and anesthetists may find it difficult to properly administer this for of anaesthesia. So in the initial cases anesthesia may be incomplete or patient may be intolerant. Better result of the block can be obtained, when skin infiltration is performed before pudendal nerve block. Like in other procedures such as laparoscopic cholecystectomy, stapled haemorrhoidopexy and TURP, there is a learning curve.

CONCLUSION

Pudendal block with local skin and subcutaneous anaesthesia is a safe and effective method in all age groups. The anal stretch and surgery are painless with best patient tolerance in pudendal block with local infiltration. This can be used in those patients who are unwilling or unfit for other forms of anesthesia.

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