e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2023; 15(10); 970-974

Original Research Article

Application of SEPTA Block in Performing Surgeries Done for Benign Anorectal Pathologies in Comorbid Patients: A Prospective Observational Study

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Received: 14-08-2023 / Revised: 29-09-2023 / Accepted: 17-10-2023
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Conflict of interest: Nil

Abstract

Objectives: The present study was conducted to apply SEPTA technique for the conduction of surgeries done for benign Anorectal pathologies in comorbid patients.

Methods: SEPTA (Simplified Easily reproducible Pudendal nerve block Technique for Anorectal surgery) block was applied for the surgeries done for benign anorectal pathology. In the SEPTA technique, the anaesthetic solution was simply injected into the centre of the ischioanal fossa from where it percolates down to the pudendal neurovascular bundles. Hemorrrhoidectomy was done for hemorrhoid patients. Lateral anal internal sphincterotomy was done for fissure patients. Fistulotomy was done for uncomplicated low lying anal fistula patients.

Results: Anorectal surgeries were done for 50 patients of benign anorectal pathology by the application of SEPTA technique. Among them 30 patients were males and 20 patients were females. Most of the patients 27(54%) were in age group of 40-50 years. Mean age of patients was 45.23±9.43 years. Most of the patients had hemorrhoids 30(60%), 10(20%) patients had low-lying uncomplicated anal fistula and 10(20%) had fissure in ano. No conversion to spinal anesthesia was required in any of the patients. There was no significant complications and pain seen in the intraoperative as well as post operative periods.

Conclusions: SEPTA technique applied in the surgeries done for benign anorectal pathologies obviates the need of giving spinal anaesthesia and at the same time, allows safe and painless surgery in those patients who are otherwise deemed unfit because of comorbidities like heart disease, diabetes and hypertension. Hence SEPTA technique is a good alternative to spinal anaesthesia in anorectal surgeries done for benign anorectal pathologies in comorbid patients.

Keywords: Anorectal benign disease, SEPTA technique, Age group.

Introduction

Benign anorectal diseases are hemorrhoids, anorectal fistulas, anal fissures, papillomas, anal condylomas and paraproctitis. Paraproctitis and thrombosed piles are treated as acute cases and operated on emergency basis whereas other ones are operated electively. Hemorrhoids, anal fissures and fistulas are the most common anorectal pathologies encountered [1].

The prevalence of hemorrhoids and other anorectal diseases is 4–5% in adult population in the United States and approximately 10% of these cases require a surgical intervention [2]. According to Argov [3], internal hemorrhoids are present in 4 percent of Western adult population.

Some 20–30 years ago anorectal surgery was regarded as an extremely painful procedure. The operation per se was painless under adequate anesthesia, however post operatively, after the weaning of the effect of regional anaesthesia, there was excruciating pain in the operated site and associated functional disorders of the adjacent organs [4,5]. The functional disorders of the rectum, urinary bladder and sexual organs were not only caused by the operative manipulation but also due to insufficient postoperative analgesia or care [1]

Caudal block provided better outcome including sensory block levels without motor blockade. Post operative analgesia requirement is low in caudal block. Lower complication rates and earlier

mobilization revealed that caudal block can be used as a safe method in patients undergoing anorectal surgeries. Recently, it was revealed that spinal anesthesia did not reduce the catecholamine response despite mid-thoracic analgesia levels [6]. Therefore, the hemodynamic variables did not change. They concluded that spinal anesthesia blocked the increase in cardiac index [15].

Anorectal surgery done under pudendal block (local anaesthesia) has several advantages [7]. However, the conventional technique of pudendal block is underutilized because it is technically demanding [8]. A simpler technique, SEPTA (Simplified Easily reproducible Pudendal nerve block Technique for Anorectal surgery), which is safer and easier to administer, has been devised. In the SEPTA technique the anaesthetic solution is simply injected into the centre of the ischio-anal fossa from where it percolates down to reach the pudendal neurovascular bundle [9]. The objective of our study was to apply SEPTA technique for the conduction of surgeries done for benign anorectal pathologies.

Material & Methods

The present study was conducted in the department of surgery in HNB Base Teaching Hospital, Srinagar, Garhwal during a period from Jan 2020 to Jan 2022. All the subjects signed a written informed consent and the study was approved by the ethical committee of the institute.

A total of 50 patients of benign anorectal pathologies who had comorbidities such as diabetes mellitus, hypertension and heart disease and who were admitted in the department of surgery in HNB Base Hospital, Srinagar were enrolled in this study. SEPTA technique was used for providing anaesthesia in the surgeries done for all these 50 patients.

Septa: (Simplified Easily reproducible Pudendal nerve block Technique for Anorectal surgery), is a safe and easy to administer technique that has been devised. In the SEPTA technique the anaesthetic solution is simply injected into the centre of the ischio-anal fossa from where it percolates down to the pudendal neurovascular bundle. Digital rectal examination is not done in this procedure as no attempt is made to localize the Alcock's canal and hence go close to the pudendal neurovascular bundle. This reduces the risk of injury to the pudendal neurovascular bundle . Moreover, digital rectal examination can also be painful in certain anal conditions and at times, the solution can be accidentally injected away from the pudendal canal leading to ineffective block.

Procedure:

After proper premedication (injectable pentazocine 30 mg and promethazine 12.5 mg), the patient was positioned in the lithotomy position. Then 5 ml of anaesthetic solution (2% lignocaine with 1 in 200 000 adrenaline) was administered subcutaneously in the perianal region and another 5 ml in each ischiorectal fossa. Subsequently 3 ml of solution was injected posteriorly in the presacral area, and 2 ml was injected anteriorly to complete the block. The following 3 procedures were done using this technique.

- Open hemorrrhoidectomy was done for the patients with third degree and fourth degree hemorrhoids. Lateral anal internal sphincterotomy(LAIS) was done for the patients with fissure in ano. Fistulotomy was done for uncomplicated low lying anal fistula patients.

Statistical Analysis

Data was analysed with the help of SPSS software. Fisher's exact test was used and p-value was taken less than or equal to 0.05 ($p \leq 0.05$) for significant differences.

Observations

Anorectal surgeries for 50 patients of benign anorectal pathologies were performed by the application of SEPTA technique. Among them 30 patients were males and 20 patients were females. Most of the patients 27(54%) were in age group of 40-50 years. Mean age of patients was 45.23±9.43 years.

Table 1: Gender wise distribution of anorectal pathology patients.

Gender	No. of patients	Percentage
Male	30	60%
Female	20	40%
Total	50	100%

Table 2: Age wise distribution of anorectal pathology patients.

Age (Years)	No. of patients	Percentage
30-40	4	8%
40-50	27	54%
50-60	13	26%
>60	6	12%
Total	50	100%

Most of the patients had hemorrhoids 30(60%), 10(20%) patients had low lying uncomplicated anal fistula and 10(20%) had fissure in ano.

Table 3: Anorectal pathology

Anorectal pathology	No. of patients	Percentage
Hemorrhoides	30	60%
Low lying uncomplicated anal fistula	10	20%
Fissure in ano	10	20%
Total	50	100%

Table 4: Comorbidities

Comorbidities	No. of patients	Percentage
Diabetes mellitus	10	20%
Hypertension	32	64%
Heart disease	8	16%
Total	50	100%

In the present study, out of 50 anorectal pathology patients, most of the 32 (64%) patients had hypertension,10(20%) patients had diabetes mellitus and rest 8(16%) had heart disease.

Table 5: Complications

Complications	Pre-operative	Post operative
Pain	0	0
Headache	0	2(4%)
Bradycardia	0	0

In the present study, there was no significant complication and pain seen in the intraoperative and post operative periods.

Discussion

Hemorrhoids, anal fistula and fissure are the common benign anorectal pathologies seen by most surgeons. Various surgical and anesthetic techniques have been introduced to improve the analgesic level and limit the motor blockade. Both caudal block and saddle block are frequently used and the cost ratio is low [10].

In the present study, Simplified Easily reproducible Pudendal nerve block Technique for Anorectal surgery(SEPTA) technique was used for the surgery of 50 patients with benign anorectal diseases. Most of the patients 27(54%) were in age group of 40-50 years. Mean age of patients was 45.23±9.43 years. Haemorrhoids 30(60%) were the most common anorectal pathology seen in our present study.

Nerve supply to anorectal area: Nerve supply is mixed, somatic and autonomic, common with other pelvic structures. Sympathetic supply comes from sympathetic chain to hypogastric plexus(getting branches from (L1 –L5) and celiac plexus (T11–L2), and sympathetic nerves proceed to pelvic plexuses. Parasympathetic supply comes from ventral rami of S2 –S4 and forms the pelvic splanchnic nerves. These join the sympathetic plexuses to relay in the tiny end–organ ganglia. Functionally, para-sympathetic fibres provide rectal and bladder motor function, inhibit sphincteric muscle and cause genital vasodilatation. Sympathetic fibres inhibit visceral motor function and provide contraction of sphincteric muscles. Somatic nerve supply to the pelvic floor and external sphincters comes from sacral plexus (L4 –L5 and S1 –S4 segments). Coccygeal zone gets nerve fibres from S4 , S5 and Co1 . The main somatic nerves are Pudendal nerve (S2 –S4), it gives origin to inferior hemorrhoidal nerve, which supplies the external anal sphincter and perianal skin. Other branches of the pudendal nerve supply are peripheral fibres of the levator ani as well as the vagina, the base of the bladder, ischiocavernosus and bulbospongiosus muscles, penis and clitoris. Autonomic fibres supplying rectum and urinary bladder join the pudendal nerve, direct perineal branches from S3 – S4 supply major part of levator ani, puborectalis and has afferent fibers from the anal canal and perianal skin, anococcygeal nerve (S4, S5, Co1) innervates the skin over the coccyx, superior gluteal nerve (L4 and L5, S1), inferior gluteal nerve (L5, S1, and S2), posterior femoral cutaneous nerve (S1 –S3) gives supply to the skin of the inferior part of the gluteal region, the perineum and the back of the thigh and leg, and perforating cutaneous nerve (S2 and S3) supplies the skin over the medial and lower parts of the gluteus maximus [1].

Posterior perineal block was described by M. C. Marti [11]. The zone of the anal canal was blocked at two levels following the direction of the posterior perineal nerves. Superficial anesthesia of the superficial branches like anococcygeal, perforating cutaneous and posterior femoral cutaneous nerves and deep blockade of the pudendal nerve and its branches namely hemorrhoidal, anterior sphincteric, dorsal nerve of penis or clitoris and perineal nerves respectively [1].

In the present study, Simplified Easily reproducible Pudendal nerve block Technique for Anorectal surgery(SEPTA) technique was used . In the SEPTA technique, the anaesthetic solution is simply injected into the centre of the ischioanal fossa from where it percolates down to the pudendal neurovascular bundle. No finger is inserted in rectum as no attempt is made to localize the Alcock canal and go near the pudendal neurovascular bundle. Thus the risk of injury to the pudendal neurovascular bundle is also minimized [9].

Shon et al[10] evaluated the influence of caudal blockade, saddle blockade, and lumbar epidural blockade in patients undergoing anorectal surgery. They have found out that the lumbar epidural block was a better choice than the caudal block in cases where saddle block cannot be applied. In a study conducted by Suchiya et al [12], it was stated that caudal blockade with the guidance of ultrasonography can be effectively used in post-operative analgesia for pain related to the urinary catheter. Yapanoglu et al. [13] observed that patients undergoing prostate trucut needle biopsy with caudal blockade, achieved adequate post-operative analgesia and early mobilization. Sacral dermatomes consisting of S1-S4 spinal nerve roots have to be successfully blocked for a better surgical anesthesia of the anorectal surgery. In our study, it was revealed that the preferred sensorial block levels for the anorectal surgeries, consisting sacral dermatomes, achieved better results with caudal block than saddle block. In addition, we observed lower Bromage scores with caudal block indicating that early mobilization was possible in these patients. Similar benefits were reported for caudal block previously. Wong et al. [14] found that the caudal block produced early recovery of motor blockade with minimal hemodynamic changes. By this way, fast-track caudal anesthesia is related with short-term post-operative surveillance [15].

In the present study, hemorrhoidectomy was done in 30(60%) patients. Sphincterotomy was done in 10(20%) fissure patients and fistulotomy was done in 10(20%) fistula patients. There was no intraoperative complication seen. There was no pain in intraoperative and post operative periods but post operative headache was seen in only 2(4%) patients. All the patients had some comorbidities: 32(64%) hypertension, 10(20%) diabetes mellitus and 8(16%) had heart disease. But there was no significant risk found in anorectal surgery in this present study. Akyıldız et al. [16] compared the outcomes of caudal block, spinal anesthesia, and local anesthesia in pilonidal sinus surgery. They have found out that caudal block was more advantageous regarding their duration of hospital stay, post-operative VAS scores, and first analgesic requirement. Kiasari et al. [17] observed more headache in patients undergoing spinal anesthesia than epidural patients. In adults, the failure rate of caudal epidural block may be high even in experienced hands because of using conventional blind technique [18]. Caudal block is notably preferred for anorectal surgery. However, the success rate has been reported to be 70– 80% [19, 20].

Conclusions

The present study concluded that SEPTA technique applied in the surgeries done for benign anorectal pathologies obviates the need of giving spinal anaesthesia and at the same time, allows safe and painless surgery in those patients who are otherwise deemed unfit because of comorbidities like heart disease, diabetes and hypertension. Hence SEPTA technique is a good alternative to spinal anesthesia in anorectal surgeries done for benign anorectal pathologies in comorbid patients.

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