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The Effect of Anesthetic Techniques in Pilonidal Sinus Surgery

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Objectives: To compare local anesthesia plus sedation with spinal anesthesia for ano-rectal (pilonidal sinus) surgery, with respect to recovery time, postoperative complications and patient satisfaction.

Setting: Prince Rashid Military Hospital.

Methods: Total of 64 patients were randomized in two groups; group LA (n=32) received local anesthesia of 20 ml 0.5% bupivacaine infiltrated around pilonidal sinus plus 1.5-3 mg intravenous midazolam and group SA (n=32) received 1.5 mg of 0.5% bupivacaine into subarachnoid space as spinal anesthesia. Peri-operative side effects, visual analogue pain scale score for three days, patient satisfaction and hospital stay were recorded and assessed.

Results: patients in spinal anesthesia group spent more time in operating theatre and recovery room. Two thirds of the patients with local anesthesia group (65.6%) left the hospital on the day of surgery, compared to only (34.4%) in spinal anesthesia group. Ninety and point 6 percent were satisfied in LA group compared to 75% in SA group. Post-operative complications occurred in five patients of spinal anesthesia group (3 urinary retention and 2 spinal headache).

Conclusion: Sacrococcygeal local anesthesia for pilonidal sinus resulted in lower complications, shorter hospital stay and more post-operative patient's satisfaction.

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Pilonidal disease is a painful condition usually occurs in the intergluteal region, which carries high recurrence rate of 50% after surgery[1]. It was first described by Mayo in 1833[2]. Since that time the disease has puzzled the physicians about its etiology, whether congenital or acquired. During the second world war more than 78,000 soldiers were treated for this condition, this led to less extensive surgical treatment designed to get soldiers out of hospital and return them to active duty, for this reason many procedures now are done as outpatient[3-7]. Local, spinal or general anesthesia are commonly used techniques for the disease. This comparative study was designed to evaluate two anesthetic techniques namely local anesthesia with sedation and spinal anesthesia with respect to recovery time, post-operative complications, pain scores, patient satisfaction and hospital stay.

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METHODS

Sixty four patients were randomized by means of sealed envelopes to local anesthesia (LA) group, and spinal anesthesia (SA) group. Only those patients classified as (American Society of Anesthesiologist) grade I or II were included in the study. In the (LA) group, 20 ml of 0.5% bupivacaine with 1:200,000 epinephrine was infiltrated in the sacrococcygeal area around pilonidal sinus, along with intravenous sedation using 1.5-3 mg of midazolam titrated slowly within five minutes to the desired effect. In the (SA) group, patients received an injection of 1.5 ml of 0.5% bupivacaine to the subarachnoid space at L3\L4 interspaces. The whole sinus was removed and the gap was covered with karydakis flap[8]. Both groups of patients had peri-operative monitoring with electrocardiograph, pulseoximetry and non-invasive blood pressure monitoring. The age, sex and weight of all patients were recorded. The amount of intravenous midazolam was recorded. The total time in the operating room and the time for surgery were recorded. Any problems encountered by the surgeon or anesthetists were noted.

Post-operatively the following were recorded: pain, nausea, vomiting, the type of analgesia required and their satisfaction with the anaesthesia. Visual analogue pain score was filled by the patient untill the 3rd post-operative day.

RESULTS

Thirty-two patients (28 men and 4 women) were randomly assigned to the LA group, the mean age was 28 (ranged 23-54) years, and the mean weight was 58 (range 45-75) Kg. Thirty-two patients (29 men and 3 women) were randomized to the SA group, the mean age in this group was 26 (range 20-49) years and the mean weight was 56 (range 41-84) Kg. No significant differences regarding gender, age and weight. There was statistically significant difference in satisfaction between the two groups as 90.6% were satisfied in group LA compared to 75% in group SA (Table 1). The mean time on the operating room was 25 minutes in the LA group, and 40 minutes in the SA group, and surgery time was 20 minutes in both groups. In the SA group, the mean duration of anesthesia was 80 minutes, while 60 minutes in LA group (Table 2). There was no difference in the oxygen saturation or pulse rates measured immediately after operation. Two hours after surgery 4 patients in the LA group and 10 patients in the SA group complained of pain. There was no significant difference in symptoms of pain, nausea and vomiting between the two groups. Three patients developed urinary retention and 2 patients developed headache in (SA) group. The mean time to initial experience of pain was 6.5 hours in the LA and 4.5 hours in the SA group. Post-operative analgesic requirements were similar in both groups as shown in visual analogue pain scale score (Table 3).

Table 1. **Demographic and patients satisfaction**

	(LA) group	(SA) group
Gender (M/F)	28/4	29/3
Mean age (years)	28	26
Mean weight (Kg)	58	56
Patients satisfaction	90.6%	75%

P-value < 0.05 significant

Table 2. **Duration of anesthesia, actual operation and operating room time**

	(LA) group	(SA) group
Mean time on operating room (min)	25	40
Actual operation time (min)	20	20
Mean time of anesthesia (min)	60	80

Table 3. **Mean visual analogue scale score of patients**

	(LA) group	(SA) group
Pre operative	1.23	1.24
4th hour	3.5	4.8
1st day	3.9	4.5
2nd day	3.8	4.2
3rd day	3.6	3.7

P-value < 0.05 significant

In LA group 21 (65.6%) patients left the hospital on the same day, while only 11 (34.4%) patients in SA group did so. At 6 weeks follow-up, no post-operative complications were reported in either group.

DISCUSSION

The ideal operation for pilonidal sinus disease should be simple, require short or no hospitalization and have a low recurrence rate[9]. There should be minimal pain and wound care, rapid return to normal activity and treatment should be cost effective[1]. With this in mind, many surgical and anesthetic procedures have been advocated to reach this goal[10]. Local anesthetic infiltration, spinal anesthesia and general anesthesia are commonly used anesthetic techniques for pilonidal sinus. However, the best anesthetic technique to reach our goals remains unknown[11]. In this study, the use of local anesthesia with midazolam sedation provides significant advantages over spinal anesthesia: shorter anesthesia time, shorter recovery room time and less post-operative admissions. Sungurtekin et al studied regional and spinal anesthesia in pilonidal sinus surgery and found that patients with local anesthesia had shorter time and lower costs with no side effects[11]. But this study differs in that surgery time is shorter (25, 20 minutes), compared to (32, 29 minutes) their study.

This difference is due to the procedure, which we used (primary closure); it took shorter time than the complicated gluteus maximus flap that they used.

There was no statistically significant difference in visual analogue pain scale score between local and spinal anesthesia, which was similar to findings of the other study. The use of spinal anesthesia may lead to development of transient neurological symptoms, especially when short acting anesthetics such as lidocaine is used[12]. Bupivacaine has been the most alternative to lidocaine, because it has no transient neurological symptoms. But the spinal bupivacaine we used in this study may delay recovery of motor functions. Imarengiaye et al suggested that the ability to walk without assistance after spinal anesthesia requires a longer recovery period than predicted solely by gross motor recovery, making its return inadequate as a sole marker of ambulatory ability and readiness for discharge[13]. To overcome the delay in recovery of motor functions, they used a low-

dose (5-mg), dilute solution of bupivacaine combined with 10 μg fentanyl. The mean time of anesthesia in their method was 60 minutes compared to 80 minutes in this study.

The previous dose avoid prolonged detrusal block and inability to void, which occurred in 3 patients in this study. Another complication we encountered in SA group, was post-dural puncture headache occurred in 2 patients (6.2%), which is higher than was recorded by William et al (less than 1%)[14].

The reason for this low number probably reflects the well-known facts that the development of headache after dural puncture varies inversely with age; hernia patients in their study tend to be in older patients rather than younger in our study.

CONCLUSION

The use of local anesthesia with sedation in pilonidal sinus surgery resulted in shorter hospital stay, less complications and more patient satisfaction, when compared to spinal anesthesia.

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