LOCAL INFILTRATION ANESTHESIA VERSUS SPINAL ANESTHESIA IN PILONIDAL SINUS SURGERY

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ABSTRACT

Objective: To compare local infiltration anesthesia plus sedation with spinal anesthesia for pilonidal sinus surgery, with respect to recovery time, postoperative complications and patient satisfaction.

Methods: This study was conducted at Prince Hashem Military Hospital, Zarqa. A total of 64 patients were randomized into two groups; local infiltration anesthesia group (n=32) received local anesthesia of 20 ml 0.5% bupivacaine infiltrated around the pilonidal sinus plus 1.5-3 mg intravenous midazolam and spinal anesthesia group (n=32) received 1.5 ml of 0.5% bupivacaine into the subarachnoid space as spinal anesthesia. Perioperative side effects, visual analogue pain scale score for three days, patient satisfaction and hospital stay were recorded and assessed.

Results: Patients in the spinal anesthesia group spent more time in the operating theater and recovery room. Two thirds of the patients in the local infiltration anesthesia group (65.6%) left the hospital on the day of surgery, compared to only (34.4%) in the spinal anesthesia group. About 91% were satisfied in-group local infiltration anesthesia in comparison to 75% in the spinal anesthesia group. Postoperative complications occurred in five patients of spinal anesthesia group (3 urinary retention and 2 spinal headache).

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

Key words: Pilonidal sinus, Local infiltration anesthesia, Midazolam, Spinal anesthesia.

Introduction

Pilonidal disease is a painful condition usually occurs in the intergluteal region, which carries high recurrence rate after surgery reaching 50% [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 are now done on an outpatient basis.[3-7] Local infiltration, spinal or general anesthesia are commonly used techniques for the disease. This comparative study was designed to evaluate two anesthetic techniques namely local infiltration anesthesia with sedation and spinal anesthesia with respect to recovery time, postoperative complications, pain scores, patient satisfaction and hospital stay.

Methods

After obtaining informed consent from each patient, sixty four patients with symptomatic pilonidal sinus undergoing surgery by mean of excision and primary closure were randomized by means of sealed envelopes into local infiltration anesthesia (LA) group, and spinal anesthesia (SA) group. Only those patients classified according to the American Society of Anesthesiologists (ASA) as grade I or II, were included in the study. In the (LA) group the patients were turned to the prone position, 20 ml of 0.5% bupivacaine with 1:200,000 epinephrine was infiltrated to sacrococcygeal area around pilonidal sinus, along with intravenous sedation using 1.5-3 mg of

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midazolam titrated slowly within five minutes to the desired effect. In the (SA) group patients received spinal anesthesia using a standard midline approach in the setting position, with the injection of 1.5 ml of 0.5% bupivacaine in the subarachnoid space at L3\L4 interspaces. After that, patients were repositioned in the prone position. The surgical procedure performed on the patients was by elliptical incision around the pilonidal sinus deep to the pre-sacral fascia, removing the whole sinus, then a karydakis flap [8] was constructed to cover the defect. Both groups of patients had perioperative monitoring with electrocardiograph, pulseoximetry and non-invasive blood pressure monitoring. The age, gender and weight of all patients were recorded. The amount of intravenous midazolam was recorded. The total time on the operating room and the time for surgery were recorded. Any problems encountered by the surgeon or anesthetist were noted. After operation all patients were sent to the recovery room. While breathing room air, continuous oxygen saturation monitoring using pulseoximeter and non-invasive automatic blood pressure monitoring every 2.5 minutes were recorded. Patients were asked if they experienced any pain, nausea and vomiting. They were again questioned regarding symptoms of pain, nausea, vomiting, headache or urinary retention 30 minutes later. After returning to the ward, patients were asked to inform the nurses as soon as they felt pain at the operation site. The time elapsed from surgery to the first feeling of pain was recorded. The types of analgesic required were also documented. Patients were discharged on the evening of surgery or the next morning, according to their preference. Just before hospital discharge, patients were asked if they were satisfied with the anesthetic, and if they would choose the same method of anesthesia again for perianal surgery. Each patient was given a chart to record visual analogue pain score at the third postoperative hour and daily thereafter until three days postoperatively. Patients were instructed that this pain score is from 1-10; where one is no pain and ten is the most pain imaginable. Patients were subsequently seen after one week.

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 were noted. There was a statistically significant difference in satisfaction between the two groups as 90.6% were satisfied in-group LA in comparison to 75% in-group SA (Table I). 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 II). There was no

difference in the oxygen saturation or pulse rates measured immediately after operation. There was no significant difference in symptoms of pain, nausea and vomiting between the two groups, but 3 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. Postoperative analgesic requirements were similar in both groups as shown in visual analogue pain scale score (Table III). In (LA) group 21 (65.6%) of patient's left the hospital on the same day, while only 11 (34.4%) of patients in (SA) group did so. At 6 weeks follow-up, no postoperative 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 our study, the use of local infiltration anesthesia with midazolam sedation provides significant advantages over spinal anesthesia. That is to say, patients with local infiltration anesthesia plus sedation had shorter anesthesia time, shorter recovery room time and less postoperative admissions. This agrees with Sungurtekin et al [11], who studied regional and spinal anesthesia in pilonidal sinus surgery and found that patients with local infiltration anesthesia had shorter time to home readiness, and lower over all costs with no side effects. But our study differs from theirs in that surgery time is shorter (25, 20 minutes), in comparison to (32, 29 minutes) in their study. This difference mostly due to the procedure which we used (primary closure), which took shorter time than the complicated gluteus maximus flap that was used in their study. For postoperative pain we found that there was no statistically significant differences in visual analogue pain scale score between local infiltration anesthesia 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 transient neurological symptoms is absent. But spinal bupivacaine that we use in our study may delay recovery of motor functions. Imarengiaye et al [13] 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. 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 our study. This dose will avoid prolonged detrusal block and inability to void, which occurred in 3 patients in our study. Another complication we encountered in (SA) group, was post dural puncture headache which occurred in 2 patients (6.2%) which is higher than was recorded by William *et al* [14] (less than 1%). The reason for this low number probably reflects the

well-known facts that the development of headache after dural puncture varies inversely with age; in the previous study, hernia tends to occur among older patients, however, in our study it is more among younger patients. In conclusion, the use of local infiltration anesthesia with sedation in pilonidal sinus surgery resulted in shorter hospital stay, less complications and more patient satisfaction, when compared to spinal anesthesia.

Table I. Demographic data 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 II. 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 III. Mean visual analogue pain scale score of patients

	(LA) group	(SA) group
Pre operative	1.2	1.2
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

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