# Acceptable effect of multimodal analgesic treatment after a Bascom cleft lift operation

Saphana Jassim Mohamed<sup>1</sup>, Billy Bjarne Kristensen<sup>1</sup>, Lars Lindgaard<sup>2</sup> & Thue Bisgaard<sup>2</sup>

# ABSTRACT

**INTRODUCTION:** Information on multimodal analgesic efficacy in patients undergoing a Bascom cleft lift operation is limited. The aim of this prospective consecutive study was to evaluate early post-operative pain in patients receiving a standardised multimodal analgesic regimen.

**METHODS:** A total of 48 patients undergoing a Bascom cleft lift operation were included over an 8-month period in a day-case set-up. The operation was performed under saddle block. In addition, patients received a standardised multimodal analgesic regimen consisting of gabapentin, ketorolac, dexamethasone, acetaminophen (paracetamol) and ibuprofen. The intensity of pain was registered preoperatively and at 2, 24, 48 h, and 30 days post-operatively. Nausea, vomiting, dizziness, ability to void, morphine consumption and post-anaesthesia care unit (PACU) time were registered.

**RESULTS:** Thirty patients were available for analysis. Postoperative visual analogue scale pain scores were low (at 2, 24, and 48 h (median values: 0 (range: 0-40), 25 (0-70), and 30 (0-60), respectively), but changed significantly over time (p < 0.001). The median overall morphine consumption was 0 (range: 0-30). None of the patients experienced vomiting or dizziness. Only two patients reported mild nausea during the stay in the PACU.

**CONCLUSION:** This study suggests that the Bascom cleft lift operation is feasible with minimal post-operative pain when using a multimodal analgesic regimen together with saddle block.

FUNDING: not relevant.

**TRIAL REGISTRATION:** ClinicalTrials.gov: NCT02196727. Regional Ethics Committee Reg. no.: H-3-2013-073. Danish Data Protection Agency Reg. no.: HVH-2013-031, with I-Suite no.: 02408.

Procedure-specific post-operative analgesic treatment has achieved increasing acceptance [1]. The use of multimodal analgesia has gained a foothold for several specific surgical procedures which has led to substantial reductions in post-operative pain score, opioid consumption and related adverse effects, length of hospital stay and perioperative care costs [1, 2]. However, the optimal post-operative analgesic treatment after a Bascom cleft lift operation has not been established. Pilonidal sinus disease is a common condition in young adult males and it often requires surgical treatment [3]. The Bascom cleft lift operation is a routine surgical procedure for complicated pilonidal sinus disease defined as chronic or recurrent abscesses/fistula and/or bleeding episodes. The results are acceptable regarding healing and recurrence [4, 5]. Cleft lift surgery is performed as day-case surgery in the Western World. Nevertheless, the operation is often associated with post-operative pain [6] and sometimes even with several days of hospital stay [7]. However, post-operative pain is not very intense and can usually be treated with ibuprofen and acetaminophen (paracetamol), and cleft lift surgery may be associated with less post-operative pain than midline surgery [8]. The fact that young age per se also predisposes to intense post-operative pain [9] further stresses the need for optimised analgesic treatment and documentation of this specific surgical procedure. General anaesthesia or neuraxial blockade is often common practice, but few studies have shown that pilonidal sinus surgery can be performed under local anaesthesia [ 6, 8, 10].

For the above-mentioned reasons and to obtain data for possible future randomised trials in patients undergoing a Bascom cleft lift operation, we performed a study to evaluate early post-operative pain in patients receiving a standardised multimodal analgesic regimen.

## METHODS

During the eight-month period from May 2013 to January 2014, patients undergoing a Bascom cleft lift operation for complicated pilonidal sinus disease in a day-case set-up were included in a descriptive, prospective consecutive study. The exclusion criteria were pregnancy, patients younger than 18 years, allergy to drugs (used in this study), alcohol or opioid addiction, American Society of Anesthesiologists (ASA) physical status 3 and language barrier. All patients received a standardised multimodal analgesic regimen: oral gabapentin 600 mg 1 h before surgery, ketorolac 30 mg and dexamethasone 16 mg were administered intravenously (IV) immediately before the operation. Post-operatively, starting in the post-anaesthesia care unit (PACU), patients received oral acetaminophen 1 g and ibuprofen 400 mg four times daily for three days and rescue morphine 10 mg when needed. Patients were advised to take the anal-

# ORIGINAL ARTICLE

Ambulatory
Surgery Department,
Hvidovre Hospital
Gastro Unit,
Surgical Division,
Hvidovre Hospital

Dan Med J 2015;62(1):A4985 1

### FIGURE 1



gesics even if they had no pain. The operation was performed under saddle block using 0.7 ml of 0.5% hyperbaric bupivacaine with the patient in a sitting position for 10 min. for sacral spread. To prevent vasovagal syncope, 20-30 mg of propofol was administered prior to the saddle block in young patients, and an additional 5 mg of ephedrine was given to patients with a history of syncope. Subsequently, patients were repositioned to a prone position. Cefuroxime 1.5 g and metronidazole 1 g were administered IV for infectious prophylaxis. Additional sedation with propofol (1-5 mg/kg/h) and sufentanil (0.05-0.1  $\mu$ g/kg) was administered on request. When fulfilling standardised discharge criteria, the patients were discharged for their homes directly from the

Wound pain was scored on a visual analogue scale (VAS): 0 mm = no pain, 100 mm = worst pain imaginable) and a verbal rating scale (VRS): no pain, mild, moderate and severe pain) preoperatively and 2 h post-operatively by performing a patient interview. Dizziness, nausea and vomiting were registered before discharge (approximately 0.5 h after the operation); as was also the ability to void and the length of stay at the PACU. All patients were contacted by phone 24, 48 h and 30 days after the operation and asked to state the pain (VAS and VRS) related to the wound and to report their morphine consumption. Thus, VAS was used to monitor pain over time and VRS to register incidents of pain. Patients were reevaluated for infection and/or recurrence in the outpatient clinic one month post-operatively.

### **Statistics**

PACU.

Since the study was descriptive and explorative, the sample size was not based on power calculation. Non-parametric statistics were used (data are described by median and ranges) with non-parametric ANOVA (the effect of time on outcome; Freidman test, p < 0.05, and Wilcoxon's test, corrected with Bonferroni for multiple testing, 0.05/4 = p < 0.0125). VRS of pain scores were dichotomised to no pain/mild pain and moderate/severe pain.

*Trial registration:* ClinicalTrials.gov: NCT02196727. Regional Ethics Committee Reg. no.: H-3-2013-073. Danish Data Protection Agency Reg. no.: HVH-2013-031, with I-Suite no.: 02408.

### RESULTS

In total, 48 patients were eligible for the study. We enrolled 30 for analysis. Thus, 16 patients did not meet the inclusions criteria, and two patients were excluded due to protocol violation (**Figure 1**). Patient characteristics are presented in **Table 1**. A total of 23 patients had propofol sedation perioperatively, median 17.5 mg (range: 0-60). Only five patients needed sufentanil perioperatively, median 0  $\mu$ g (range: 0-17.5).

Post-operative VAS pain scores (Figure 2) were low at 2, 24, and 48 h (median values: 0 (range: 0-40), 25 (0-70), and 30 (0-60), respectively), but changed significantly over time (p < 0.001). Compared with preoperative pain scores, there was no significant difference in the 2-h scores (p = 0.017; Bonferroni correction p < 0.0125). VAS scores at 24 and 48 h were higher than the preoperative values (p < 0.001), but had normalised at day 30 (p = 0.640). In all, 27 patients reported no pain/mild pain (VRS) and three reported moderate/severe pain 24 h post-operatively. Furthermore, 23 reported no pain/mild pain, and seven reported moderate/severe pain 48 h post-operatively. None of the patients had pain either 2 h post-operatively or at day 30. The median overall morphine consumption was 0 (range: 0-30). All patients complied with the post-operative regimen and had ibuprofen 1,600 mg and acetaminophen 4 g daily. In all, seven patients needed supplementary morphine (six received one dose and one patient received three doses). None of the patients experienced dizziness or vomiting, but two patients reported mild nausea during the stay in the PACU. A total of 27 patients were able to void before discharge, and all patients had voided on the evening after discharge. Four patients had a minor wound infection. None of the patients had their skin opened due to infection.

### DISCUSSION

The present study suggests that a low post-operative pain intensity is associated with the use of a standardised multimodal analgesic regimen including a low-dose spinal anaesthesia, preoperative dexamethasone and gabapentin in combination with post-operative acetaminophen and ibuprofen in patients undergoing a Bascom cleft lift operation in a day-case set-up. There was a minimal need for rescue morphine. None of the patients experienced dizziness or vomiting, and only two patients reported mild nausea in the PACU.

### TABLE 1

### Patient characteristics and perioperative data.

Age, median (range), yrs	26 (18-55)
Male/female, n	20/10
Weight, median (range), kg	88 (54-132)
Height, median (range), cm	178 (154-193)
BMI, median (range), kg/m <sup>2</sup>	28.4 (21.0-39.0)
Surgical time, median (range), min.	47 (32-117)
PACU time, median (range), min.	105 (45-170)
ASA, I/II, n	21/9
Pilonidal sinus length, median (range), cm	5 (2-11)
ASA = American Society of Anesthesiologists classification; BMI = body mass index; PACU = post-anaesthesia care unit.	

There is only limited information on multimodal analgesic efficacy in patients undergoing a Bascom cleft lift operation. Nevertheless, studies on other types of minor surgery have shown that post-operative multimodal analgesia is optimal [11]. A study conducted on patients undergoing Limberg flap surgery receiving naproxen and pethidine as post-operative pain treatment demonstrated a VAS score exceeding 4 during the first four post-operative days whether the procedure was performed under spinal anaesthesia or local anaesthesia [6]. Our multimodal analgesic treatment aimed at reducing opioid requirements and/or reducing adverse effects by combining analgesics with different mechanisms or sites of action [1]. Several studies have assessed postoperative pain intensity and duration following the Bascom cleft lift operation. Unfortunately, most of the literature provides no specific information on the type and dosage of analgesics used, nor does it provide information on the anaesthetic regimen [12-17]. Despite the missing information about post-operative pain treatment regimen, these studies indicate that pain scores after the operation are low. However, two recent studies used a post-operative multimodal analgesic regimen [8, 10] with acetaminophen and ibuprofen, but the drugs were taken only if needed. In the first study, the operation was performed under tumescent local anaesthesia, and the vast majority of patients were discharged in less than 1 h after the operation. In 80% of the patients, the maximum numerical rating scale (NRS) (0 = no pain, 10 = maximum imaginable pain) pain score on day two was 3.0. In the second study, local infiltration anaesthesia was used for outpatient Bascom's pit-pick operation. The maximum NRS pain score during the first post-operative day was 2.2, and at day four it was 1.0. However, a strict comparison between pit-pick and cleft lift regarding pain may be questionable (different indications, extent of surgery and open wound after pit-pick, etc.). There are only minimal risks of complications when per-

## - FIGURE

Pain scores as median VAS scores from 30 patients before and after Bascom surgery.



forming cleft lift operation under tumescent local anaesthesia, but it could involve a risk of converting to general anaesthesia. The necessity of the prone position increases the risk of patient morbidity related to general anaesthesia such as decreased pulmonary compliance, cardiovascular instability and airway problems. Spinal anaesthesia with minimal doses of intrathecal agents performed as described above allows affection of a specific area that needs to be anaesthetised.

In our study, we also demonstrated very low pain scores using a standardised multimodal analgesic regimen with gabapentin, dexamethasone, acetaminophen, ibuprofen and no local anaesthesia except for the lowdose spinal blockade.

The present study has established post-operative baseline pain data in a set-up without local anaesthetic infiltration for a possible future randomised trial comparing neuraxial block and multimodal analgesic treatment versus local infiltration anaesthesia.

Our study included relatively few patients and only post-operative pain registration from the first two days and day 30 in a non-comparative design. Therefore, the design limits the external validity of our findings. We did not use local infiltration anaesthesia supplementation in this study. However, no randomised trials have, so far, focused on the anaesthetic technique and the post-operative pain treatment in the Bascom cleft lift operation.

## CONCLUSION

The present study suggests that the Bascom cleft lift operation is feasible with minimal post-operative pain when a multimodal analgesic regimen is used together with saddle block. Whether the present analgesic regimen provides advantages in post-operative pain treatment, less side effects and better cost-benefit compared

Dan Med J 62/1

with sole local anaesthetic analgesia is a subject for a future randomised trial in our institution.

CORRESPONDENCE: Saphana Jassim Mohamed, Dagkirurgisk Afdeling, Hvidovre Hospital, Kettegård Allé 30, 2650 Hvidovre, Denmark. E-mail: saphana@gmail.com

ACCEPTED: 27 October 2014

**CONFLICTS OF INTEREST:** none. Disclosure forms provided by the authors are available with the full text of this article at www.danmedj.dk.

### LITERATURE

- 1. Joshi GP, Schung SA, Kehlet H. Procedure-specific pain management and outcome strategies. Best Pract Res Clin Anaesthesiol 2014;28:191-201.
- Elvir-Laso OL, White PF. The role of multimodal analgesia in pain management after ambulatory surgery. Curr Opin Anaesthiosiol 2010; 23:697-703.
- Søndenaa K, Andersen E, Nesvik I et al. Patient characteristics and symptoms in chronic pilonidal sinus disease. Int J Colorect Dis 1995;10:39-42.
- 4. Poulsen IM, Bisgaard T. Treatment of pilonidal sinus. Ugeskr Læger 2008; 170:2963-8.
- Senapati A, Cripps NP, Flashman K et al. Cleft closure for the treatment of pilonidal sinus disease. Colorectal Dis 2013;13:333-6.
- Sungurtekin H, Sungurtekin U, Erdem E. Local anesthesia and midazolam versus spinal anesthesia in ambulatory pilonidal surgery. J Clin Anesth 2003;15:201-5.
- Bascom J. Pilonidal disease: long-term results of follicle removal. Dis Colon Rectum 1983;26:800-7.
- Bertelsen CA. Cleft-Lift operation for pilonidal sinuses under tumescent local anesthesia: a prospective cohort study of peri- and postoperative pain. Dis Colon Rectum 2011;54:895-900.
- Bisgaard T, Klarskov B, Rosenberg J et al. Characteristics and prediction of early pain after laparoscopic cholecystectomy. Pain 2001;90:261-9.
- Colov EP, Bertelsen CA. Short convalescence and minimal pain after outpatient Bascom's pit-pick operation. Dan Med Bul 2011;58(12):A4348.
- Kehlet H, Wilkinson RC, Fischer HB et al. evidence-based, procedurespecific postoperative pain management. Best Pract Res Clin Anaesthesiol 2007;21:149-59.
- Guner A, Ozkan OF, Kece C et al. Modification of the cleft lift procedure for chronic pilonidal sinus: results in 141 patients. Colorectal Dis 2013;15: e402-e406.
- Guner A, Boz A, Ozkan OF et al. Limberg flap versus Bascom cleft lift techniques for sacrococcygeal pilonidal sinus: prospective, randomized trial. World J Surg 2013;37:2074-80.
- Senapati A, Cripps NP, Thompson MR. Bascom's operation in the daysurgical management of symptomatic pilonidal sinus. Br J Surg 2000; 87:1067-70.
- Ates M, Dirican A, Sarac M et al. Short and long-term results of the Karydakis flap versus the Limberg flap for treating pilonidal sinus disease: a prospective randomiized study. Am J Surg 2011;202:568-73.
- Abdelrazeq AS, Rahman M, Botterill ID et al. Short-term and long-term outcomes of the cleft lift procedure in the management of nonacute pilonidal disorders. Dis Colon Rectum 2008;51:1100-6.
- Rao MM, Zawislak W, Kennedy R et al. A prospective randomized study comparing two treatment modalities for chronic pilonidal sinus with a 5-year follow-up. Int J Colorectal Dis 2010;25:395-400.