



Lumbar tinea versicolor and spinal anaesthesia

Mohd Zulfakar Mazlan^{a,*}, Soon Eu Chong^b, Zeti Norfidiyati Salmuna@Ayub^c,
Nik Abdullah Nik Mohamad^a

^a Department of Anaesthesiology, School of Medical Sciences, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

^b Regenerative Medicine Cluster, Advanced Medical and Dental Institute, Universiti Sains Malaysia, Bertam 13200 Kepala Batas, Pulau Pinang, Malaysia

^c Department of Microbiology and Parasitology, School of Medical Sciences, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

ARTICLE INFO

Article history:

Received 28 September 2018

Received in revised form 9 December 2018

Accepted 6 March 2019

Keywords:

Tinea versicolor
Spinal anaesthesia
Caesarean section

ABSTRACT

Infection to the meningeal layer causing meningitis is one of the most feared complications of spinal anaesthesia. Anaesthetists will avoid spinal anaesthesia for those who are having skin infection at the puncture site. However in obstetric population, anaesthetist will try their best to avoid general anaesthesia due to its unwanted effects and complications. Strict and appropriate antiseptic measures such as chlorhexidine 0.5% with 70% alcohol has been suggested to reduce risk of transmission of microorganisms into subarachnoid space. We reported a parturient who had generalized tinea versicolor at the lumbar area, safely anaesthetized under spinal anaesthesia through meticulous antiseptic skin preparation who required delivery by caesarean section.

© 2019 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Meningitis and its influence on regional anaesthesia has been described in a few literatures before [1]. Most cases reported *Streptococcus salivarius* as the cause of meningitis [1]. None of them reported fungal as the causative organism following spinal anaesthesia [1]. Spinal anaesthesia is the commonest technique used for caesarean section. It has been reported that more than 90 percent of the anaesthetist all over the world choose this technique for caesarean section. Royal College of Anaesthesia (UK) set a target of less than 5% of general anaesthesia for elective caesarean section as a best practice [2]. General anaesthesia during obstetric surgery is associated with a significant risk not only to the mothers, for example difficult airway, failed intubation, pulmonary aspiration, airway trauma, as well as to the babies, for instance neonatal depression due to decreased uterine blood flow. A systemic review had shown that the rate of maternal and perinatal mortality due to general anaesthesia was at least double the death rate from regional anaesthesia [3]. These risks associated with obstetric general anaesthesia have led to regional techniques being used wherever possible.

However there are few contraindications for spinal anaesthesia, such as patient refusal, spina bifida, coagulopathy, head injury and skin infection at the site of puncture. Skin infection at the lumbar region by tinea versicolor is a relative contraindication for the

procedure. Neural axial block could be used depending on the clinical judgement of the severity of the infection [4]. Several reported cases showed that strict antiseptic measures had successfully prevented the occurrence of meningitis after epidural anaesthesia [4–6].

Case report

A 28-year-old pregnant woman was admitted electively for caesarean section due to severe oligohydramnios. There was no history of fever or significant skin infection noted throughout her pregnancy. She was fully conscious and stable during preoperative assessment. Physical examination showed that her spine was normal. However there were multiple well demarcated white and fine scaly skin patches over the upper and lower back which were non-pruritic, suggestive of tinea versicolor (Fig. 1). There was no superinfection or excoriation seen. Physical examination was otherwise unremarkable except for the pregnancy. Complete blood count was normal. Her spinal anaesthesia was done under strict aseptic technique which includes wearing cap, face mask, sterile gown, sterile hand gloves following hand wash with chlorhexidine 4% and cleansing agent for the skin. The lumbar area was cleansed using chlorhexidine 0.5% with 70% alcohol for skin sterilization just prior to administration of spinal anaesthesia. The skin was cleansed three times and was let dry before 3 mls of lignocaine 2% was given to anaesthetise the skin with a 23-gauge needle. A 25-gauge Spinocan needle (B. Braun, Melsungen, Germany) was used to introduce local anaesthetic to the intrathecal space. The spinal anaesthesia was successfully administered without difficulty, with

* Corresponding author.

E-mail address: zulfakar@usm.my (M.Z. Mazlan).



Fig. 1. Multiple well demarcated white and fine scaly skin patches at the back of patient.

a single needle pass. Clear cerebrospinal fluid backflow was obtained and a 2.0 mL (10 mg) hyperbaric bupivacaine 0.5% with 0.4 mL (20mcg) fentanyl mixture was administered without difficulty.

After 8 min of operation, a baby with a good Apgar score was safely delivered. There were no signs suggestive of sepsis such as fever, tachycardia, tachypnea or altered sensorium throughout the surgery. The operation took nearly one hour. The patient was then monitored at post anaesthesia recovery area for 30 min. Her vital signs were stable. She was discharged home well three days after the surgery with subcutaneous heparin for one week. She was followed-up at one-month after delivery and has recovered well without any neurological complication.

Discussion

Fungal infection to the brain and spinal cord via spinal canal following spinal anaesthesia is a very rare but a feared complication. This infection may result in meningitis which can be fatal [7]. Methylprednisolone acetate contamination with the black mold, *Exserohilum rostratum* following epidural and intra-articular injections was reported in 2012 with 7% mortality [7]. The pathogenesis is via direct entry of the *Exserohilum rostratum* into the epidural space and cerebrospinal fluid affected 741 patients [7]. Clinical manifestation of meningitis can be seen as early as within six hours. The symptoms and signs reported are fever, headache, vomiting, altered sensorium, neck rigidity and kernig sign. Meningitis caused by tinea versicolor has never been reported before. The organism responsible for this fungal skin infection was a group of lipophilic fungi known as *Malassezia* spp. The species that commonly associated with this infection are *M. globosa*, *M. sympodialis* and *M. furfur*. Skin infection caused by this fungus often diagnosed clinically. However, skin scrapings and direct microscopy using potassium hydroxide (KOH) preparations will show clusters of yeast cells and hyphae known as 'spaghetti and meatballs' appearance. It is difficult to grow this yeast in the laboratory and addition of olive oil to the agar culture medium is needed. Tinea versicolor can be treated with a topical antifungal cream. In complicated cases, it may require oral antifungal treatment. Our patient was not on any anti-fungal prior to spinal anaesthesia.

Traditionally, in the presence of infection, general anaesthesia (GA) was preferred. Although GA is not the first choice for caesarean section, the risk of planned general anaesthesia in an otherwise straightforward women is actually very low and can be performed safely if other contraindications to regional anaesthesia exist. There has been an increased evidences of safe regional anaesthesia performed in tinea versicolor patients being reported

[4,6]. This data suggests that a selected patient with tinea versicolor local skin infection over the lumbar region may still be a suitable candidate for regional anaesthesia. Several precautionary measures such as reinforced antiseptic technique [5] or extra skin incision at the puncture site are required to ensure the needle was advanced directly through the dermis layer [8]. It has also been suggested that regional anaesthesia may offer a reduction in labor stress response which may preserve immune function and help in reducing the risk of postpartum infection [6].

The causes of post spinal meningitis could be due to hematogenous spread, a breach in aseptic technique, infected equipment used for spinal anaesthesia, droplet from the patient and medical personal and direct spread of organism from infected skin into subarachnoid space following needle insertion. Bacteremia and febrile patient are amongst the relative contraindications for spinal anaesthesia [9].

In this patient, a skin area with less fine scaling was identified as spinal anaesthesia insertion site. Three ribbon gauze soaked with 10 mls chlorhexidine 0.5% with 70% alcohol were used for skin antiseptic. The skin was let to dry prior to the needle puncture. Subcutaneous injection with 3 mls of lignocaine 2% was given for local anaesthesia before the introduction of spinal needle for spinal puncture. Lumbar tinea versicolor is considered as a local fungal skin infection. Therefore, strict antiseptic measures using the best cleansing agent were of utmost importance during the spinal anaesthesia procedure. To date, there was no evidence to support the usage of chlorhexidine 0.5% in combination 70% alcohol or povidone iodine for skin antiseptic measures prior to the central neural axial block. However, the risk of catheter colonization was higher in povidone iodine group about 5.6% in comparison to chlorhexidine group 0.9% [10]. It has been reported that the bactericidal activity was higher with the combination of chlorhexidine 0.5% with alcohol in comparison with povidone iodine alone or chlorhexidine alone [11].

Insertion of spinal needle was done through the same puncture site of the local anaesthesia in this patient, so that the spinal needle was introduced directly through the dermis layer. A 25-gauge spinal needle (spinocan) was used in our patient. Prior to the needle insertion, the area of skin with the least scaling patches seen was identified. This is one of the extra precautionary measure as fungal infection affects only the superficial layers of the epidermis to prevent direct introduction of the infection via spinal needle into the spinal canal. Single needle pass without much needle manipulation and trauma to the surrounding tissues may also play an important factor for a safe spinal anaesthesia in a patient with tinea versicolor.

Our case further supports the current finding of safe spinal anaesthesia in a patient with lumbar tinea versicolor infection. Thorough cleaning of the needle insertion site with 10 mls chlorhexidine 0.5% and 70% alcohol might be a method to prevent meningitis and neurological deficit caused by tinea versicolor in a parturient undergoing spinal anaesthesia. Further reports and studies are needed to support this practice. The complication of general anaesthesia such as awareness, loss of airway control, pulmonary aspiration, and drug toxicity. The complication of general anaesthesia such as awareness, loss of airway control, pulmonary aspiration, and drug toxicity [12] versus risk of infection need to be weighed during clinical judgement.

Conclusion

High index of suspicion of skin infection, prompt diagnosis together with proper clinical judgment on appropriate antiseptic precautionary measures were important before the central neural axial block carried out in a parturient with tinea versicolor presented with severe oligohydramnios.

Acknowledgement

My sincere appreciation goes to Department of Anaesthesiology and Obstetrics & Gynaecology Hospital Universiti Sains Malaysia for managing this patient throughout her stay in the hospital. We express our gratitude to Prof Dato' Dr Sukari b Abd Halim as the Director of Hospital Universiti Sains Malaysia (USM), Kubang Kerian, Kelantan for granting his permission to use the patient's medical record; hospital space and assets through the research process. Special thank goes to the staff of the hospital USM who has relentlessly assisted us in making the research work successful. The publication fee is funded by USM304.PPSP.6316494 Bridging Grant.

References

- [1] Laurila JJ, Kostamoara PA, Alahuhta S. Streptococcus salivarius meningitis after spinal anesthesia. *Anesthesiol: J Am Soc Anesthesiol* 1998;89(December (6)):1579–80.
- [2] Husarova V, McCaul CL. Incidence of general anaesthesia for caesarean section in parturients from different geographic regions: 7-year retrospective study in a single European university centre. *Eur J Anaesthesiol (EJA)* 2016;33(6):466–8.
- [3] Sobhy S, Zamora J, Dharmarajah K, Arroyo-Manzano D, Wilson M, et al. Anaesthesia-related maternal mortality in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Glob Health* 2016;4(May (5)):e320–7.
- [4] Clark A, Camann W, Mavropoulos A. Epidural analgesia in a parturient with lumbar tinea versicolor. *Int J Obstet Anesth* 2013;22(July (3)):265–6.
- [5] Dubar G, Omarjee M, Viguié C, Barbarot S, Mignon A. Labor epidural analgesia for a woman with a pityriasis versicolor in the lumbar region. *Annales francaises d'anesthesie et de reanimation* 2011;30(7–8):597–9.
- [6] Turakhia MB, Bauchat J. Combined spinal epidural in a parturient with tinea versicolor. *J Clin Anesth* 2017;43(December):63–4.
- [7] Ritter JM, Muehlenbachs A, Blau DM, Paddock CD, Shieh WJ, Drew CP, et al. Lockhart SR. Exserohilum infections associated with contaminated steroid injections: a clinicopathologic review of 40 cases. *Am J Pathol* 2013;183(September (3)):881–92.
- [8] Reis PV, Mendes LC, Oliveira R. Is tinea versicolor a contraindication for epidural analgesia? *Minerva Anesthesiol* 2016;82(September (9)):1019–21.
- [9] Wedel DJ, Horlocker TT. Regional anesthesia in the febrile or infected patient. *Reg Anesth Pain Med* 2006;31(July (4)):324–33.
- [10] Kinirons B, Mimoz O, Lafendi L, Naas T, Meunier JF, Nordmann P. Chlorhexidine versus Povidone Iodine in preventing colonization of continuous epidural catheters in children a randomized, controlled trial. *Anesthesiol: J Am Soc Anesthesiol* 2001;94(February (2)):239–44.
- [11] Sakuragi T, Yanagisawa K, Dan K. Bactericidal activity of skin disinfectants on methicillin-resistant Staphylococcus aureus. *Anesth Analg* 1995;81(September (3)):555–8.
- [12] Jadon A. Complications of regional and general anaesthesia in obstetric practice. *Indian J Anaesth* 2010;54(September (5)):415.