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Case Report

Umbilical hernioplasty under transverse abdominis plane and rectus block: a case report

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ABSTRACT

Umbilical hernia is a common diagnosis in surgery. Approximately, 10% of all abdominal wall hernias are defined as umbilical hernia. The European hernia society defines a primary umbilical hernia as a ventral hernia present at birth or developed spontaneously without trauma to the abdominal wall as the cause of the hernia and with its center at the umbilicus. Rectus sheath block has been traditionally used to provide analgesia for anterior abdominal wall surgeries, as it spares the visceral pain component. It's been used efficiently for intraoperative, post-operative analgesia, providing stable hemodynamic. The emergence of ultrasound has potentially increased the rate of success, while avoiding complications like bleeding, peritoneal puncture, visceral injury. Rectus sheath block is emerging as a valuable regional. Anesthesia technique. It can be used as an adjuvant or alternative to central neuraxial block and general anesthesia for surgeries of anterior abdominal wall, pediatric umbilical hernia, incisional hernia, laparoscopic surgeries and abdominal gynecological procedures and for analgesia. This is a case report of 47-year-old male with multiple comorbidities posted for umbilical hernia repair performed under combined rectus sheath and tap block.

Keywords: Umbilical, Hernia, Transverse, Abdominis, Rectus sheath, Ultrasound, Regional

INTRODUCTION

Umbilical hernia surgery is one of the most commonly performed surgical procedures. An umbilical hernia refers to an external abdominal hernia in which the contents of the abdominal cavity protrude from the weakened umbilical area.[1] The umbilicus is located in the middle of the abdominal wall, which is the last part of the abdominal wall to close during embryonic development.[2] The lack of adipose tissue in the umbilical area leads to the outermost skin, fascia, and peritoneum of the abdominal wall being directly connected together, making it the weakest part of the abdominal wall.[3] The contents of the abdominal cavity protrude from this part to form an umbilical hernia. Obesity is the main cause of adult umbilical hernias due to increased abdominal pressure.[4] The current treatment for umbilical hernias includes traditional open surgery, laparoscopic repairs, or even robotic repairs The transversus abdominis plane block is field block and it involves myocutaneous nerves supplying the anterior abdominal wall. Rectus sheath block provides somatic pain relief for abdominal wall structures superficial to the peritoneum, from the xiphoid process to the symphysis pubis. We present a case report of umbilical hernia repair where TAP and Rectus sheath block was used as sole anesthetic technique.

CASE REPORT

We report a case of, 47-year-old male, ASA 4, umbilical hernia-skin over hernia infected. gross ascites, chronic liver disease, deranged bleeding and clotting profile. under ultrasound guidance bilateral transverse abdominis plane and bilateral rectus block was given using 60 ml of

2% ropivacaine as the skin over the hernia was infected the surgery had to be done and couldn't be postponed. the surgery was done without patient having any pain with adequate anaesthesia under regional nerve (plane) blocks. as the patient was child "c" status, surgery under general anaesthesia was contraindicated. as the bleeding profile was deranged and fluid shift during surgery expected central neuraxial block was contraindicated. hence, ultrasound guided regional nerve block was considered.

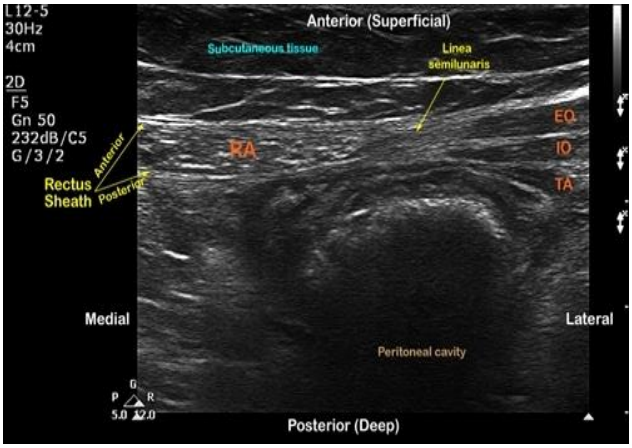

Figure 1: Sonoanatomy of rectus sheath and tap block.

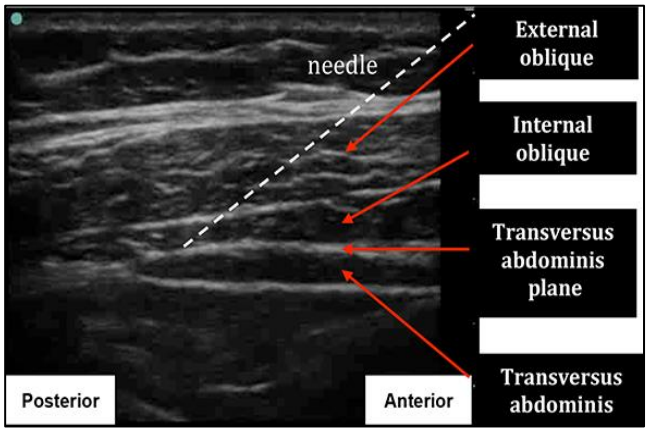

Figure 2: Needle insertion point for tap block.

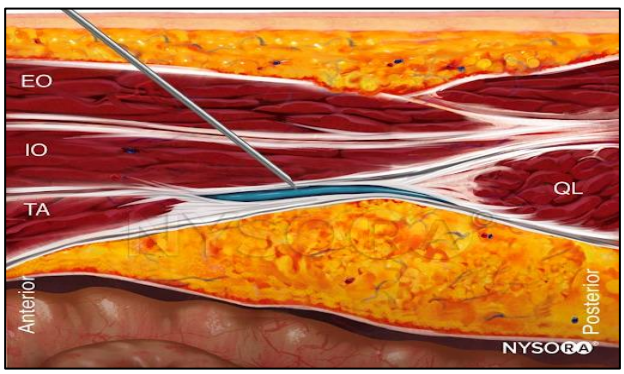

Figure 3: Anatomical landmarks of tap block (Nysora).

DISCUSSION

The anterior rami of the T7-T11 nerves provide sensory innervation to the rectus muscle and overlying skin. Local anaesthetic deposition within the posterior rectus sheath provides dense and predictable somatic anaesthesia to the anterior abdomen, sufficient for umbilical surgery or superficial surgery within the vicinity. Incisions in the suprapubic region may also derive some analgesic benefit, especially if supplemented with either

ilioinguinal or transversus abdominis plane blocks.[1] For surgeries deep to the peritoneum, however, there is usually deep visceral pain, for which systemic or epidural analgesia is required.

Oliveira et al reported the effect of TAP block on the reduction of postoperative pain in laparoscopic surgical procedures.[2] TAP block reduced early pain at rest, late pain at rest, and postoperative opioid consumption.[2] In open hernia surgery, the efficacy of TAP block has been reported previously. Compared with conventional local anesthesia, the combination of TAP block with local anesthesia showed a higher efficacy in obtaining adequate anesthesia and postoperative pain control for hernia repair.[3] In addition, we performed RS block for pain control in the umbilical site. RS block has been assessed as a modality for pain management in umbilical hernia repair Isaac et al compared RS block with local anesthetic infiltration and found no difference in postoperative opioid use and pain scores between the two modalities.[4-6] However, similar to our study, Gurnaney et al found that ultrasound-guided RS block provided better analgesia than local anesthetic infiltration in umbilical hernia repair cases; furthermore, it can provide real-time information on the needle tip location and the local anesthetic delivery to the desired location.[4] Some complications, such as puncture of intraperitoneal viscera, have been documented after a blind TAP block.[7,8] McDermott et al reported that that the needle tip and local anesthetic spread were in the correct plane only in 17 of 72 injections (23%) in 36 patients.[8] In the remaining 55 patients, the needle tip was located in the subcutaneous tissue in 1 patient, the external oblique muscle in 1 patient, between the external and internal oblique muscles in 5 patients, the internal oblique muscle in 26 patients, the transversus abdominis muscle in 9 patients, and the peritoneum in 13 patients. TAP block was performed bilaterally using the standard landmark-based blind technique, and ultrasonography was used to detect the needle position and local anesthetic spread in their study. The use of ultrasound may reduce such complications. In the present study, we did not observe any complications. The use of ultrasound guidance has been shown to improve the success rate for the application of not only RS block, but ilioinguinal block and TAP block as well.[9] In the present study, we used a combination strategy of TAP block and RS block. Patients experience pain or discomfort at the injection site

when a large amount of anesthetic is injected in a single area. Moreover, injecting a great amount of local anesthetic at a single site may result in postoperative hematoma. Therefore, we combined these two block methods. This combination strategy was considered to be feasible and safe, and it did not cause postoperative complications, excess pain, or discomfort. Thus, we report that laparoscopic surgery with TAP and RS block reduced postoperative pain in laparoscopic inguinal hernia surgery. Milone et al reported that TAP block is effective in reducing pain after open inguinal hernia repair.[11] To our knowledge, this is the first report to demonstrate the efficacy of TAP and RS block in laparoscopic inguinal hernia repair. There is significant evidence to support that this combination strategy causes less postoperative pain, at least in the immediate postoperative period.[10]

CONCLUSION

Rectus sheath and transverse abdominis plane block is an excellent alternative in patients in whom general and central neuraxial block is contraindicated.

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Ethical approval: Not required

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