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# Novel Technique In Strangulated Para-Umbilical Hernia Repair Under Local Anaesthesia Block For High-Risk Patient : Case Report

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### ABSTRACT

**Background:** Strangulated hernia is one of the most emergency cases that require surgery under general anaesthesia. Here, we present a rare case of strangulated PUH repair done under rectus sheath block (RSB).

**Case Presentation:** We report here a case of a 74-year-old male with diabetes mellitus, hypertension, ischemic heart disease with ejection fraction 20% who presented to our ER with peri-umbilical hernia (PUH) swelling and constipation. On examination, incarcerated PUH was found with massive ascites. Under local anaesthesia, rectus sheath block was performed. During midline laparotomy, there was a supra-umbilical hernia defect of about 3 cm narrow neck containing bowel loop about 5-7cm in length, initially appeared ischemic then regain its normal colour, primary repair done for the defect. No complication was observed in the post-operative period.

**Discussion:** Strangulated hernia is an emergency case that requires surgical intervention, hernia reduction and resection of necrotic tissue if needed.

PUH repair as a day case by using local anaesthesia is a good option as it has advantages of low recurrence and infection rate. For patients with 3 to 4 ASA class, general or spinal anaesthesia is risky, and RSB is the best alternative option in such high-risk patients.

**Conclusion:** Rectus sheath block is a good option for strangulated PUH patients.

**Keywords:** Para-Umbilical Hernia, Rectus Sheath Block, Strangulated, Hernia, Case Report

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## Background:

Strangulated abdominal wall hernias requiring surgery are frequently encountered during emergency surgery. Treatment strategy for these patients includes urgent surgical exploration, reduction of hernia, and resection of devitalized tissue if needed<sup>1,2</sup>.

The repair of PUH with local anaesthesia block in a day-case setting is a good option, with comparable infection and recurrence rates.

For patients with 3–4 American Society of Anesthesiologists Classification (ASA) status, the use of general or spinal anaesthesia will be a high risk. Rectus sheath block will provide an alternative platform for surgery with good conditions and procured prolonged postoperative analgesia. This block, easy to perform, is an interesting alternative in emergency cases for general or spinal anaesthesia in high-risk patients<sup>3</sup>. No cases have been published worldwide on strangulated PUH under rectus sheath block.

## Case Presentation:

**Patient Information:** A 74-year-old male with a known history of diabetes mellitus, hypertension, renal impairment, ischemic heart disease with ejection fraction 20%, and massive ascitis presented to our ER with complaints of persistent vomiting for 1 day. He also complained of painful para-umbilical hernia swelling and constipation for five days.

**Clinical Findings:** The patient was vitally stable and febrile. Local examination revealed massive ascitis with para-umbilical swelling of about 5 × 7 cm in size with skin changes. It was tender and irreducible.

## Diagnostic Assessment:

# CBC : - WBC:  $4.38 \times 10^6$  / ul. - Hgb:13.1 g/dl. - Plt:  $184 \times 10^3$  / ul.

# PT: 15.8 (High). – INR: 1.2 (High)

# Lactic Acid : 1.34 mmol/L (Normal)

# LFT: - ALT :18 U/L, - AST: 25 U/L. - ALP: 95 U/L. - GGT: 55. - Direct Bilirubin : 5.9 umol /L (High). - Total Bilirubin : 15 umol/L/

#RFT: -Bun:- 29 (Critically High).- Creatinine: 170 (High) - Sodium: 134 mmol/L (low).

-Potassium : 5 mmol/L. -Calcium:2.13 mmol/L. - CL:107 mmol/L. - Magnesium: 0.82 mmol/L.

- Phosphate:1.41 mmol/L.

## Therapeutic Intervention:

Under local anaesthesia, the RSB was achieved by injecting 30 ml of 0.25 Bupivacaine. Intravenous sedation was also administered. During midline laparotomy, there was a supra-umbilical hernia defect of about 3 cm narrow neck containing bowel loop of about 5-7 cm in length. Initially, there was an ischemic loop, but it then regained normal color. Primary repair was done for the defect ( Figure 1).

## Follow-Up:

Postoperatively, the patient tolerated oral diet and mobilized with no complaints. He was reviewed by cardiologists regarding ischemic cardiomyopathy and was put on lasix because he had ascitis. From the cardiac point of view, he was fit for discharge on lasix, concor and coversyl. However, abdominal ultrasound showed cholelithiasis and ascitis. So, ascetic tap was done to avoid disruption of the wound and recurrence of the hernia. Then the patient was discharged in stable condition with outpatient appointment.

-On 11-12-2016, the patient had recurrence of PUH due to poor control of ascitis.

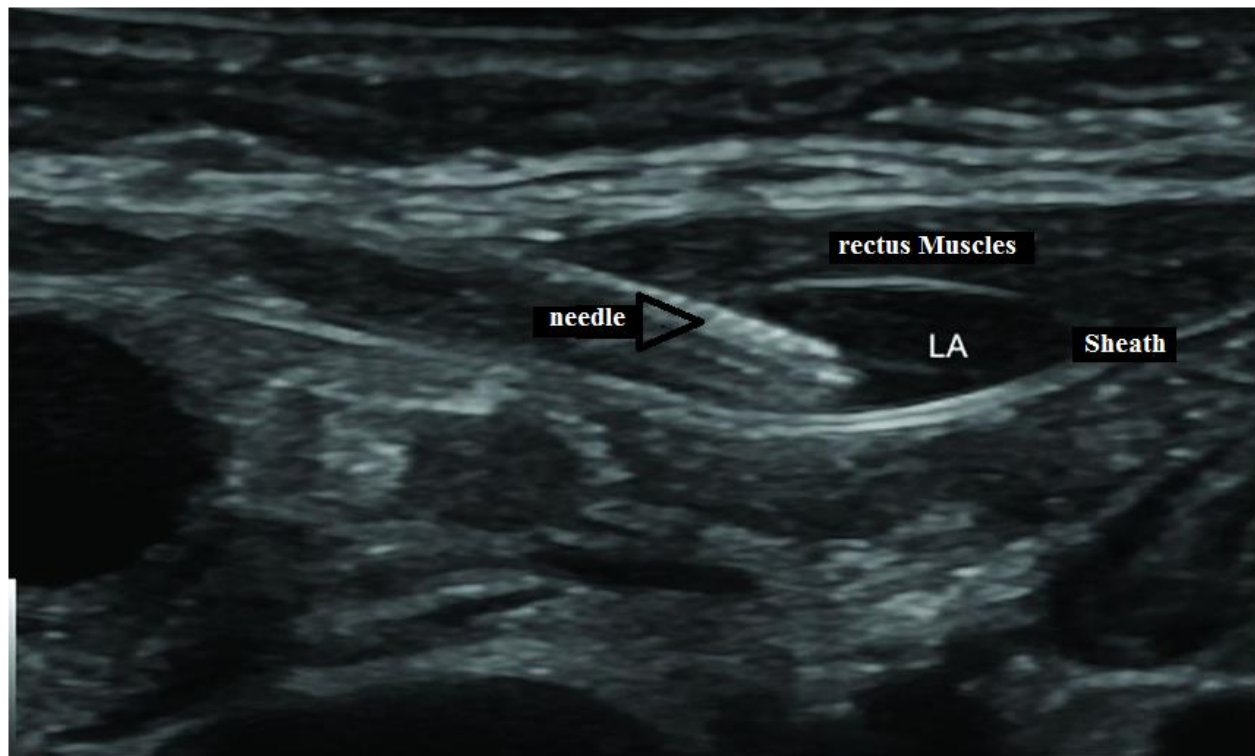
-On 10-08-2017, the patient admitted as a case of recurrent incarcerated PUH and underwent PUH hernia repair, following which the patient was discharged.

## Discussion:

PUH occurs through a defect in the linea alba. It is the most common hernia among anterior abdominal wall hernias and constitutes about 85% of the ventral abdominal wall hernias and 10-14% of overall hernias <sup>4</sup>. It is commonly observed in the age group of 50-60 years. Obesity, ascitis, multiparity and female sex are considered to be the most common risk factors for PUH<sup>5</sup>. Swelling near the umbilicus is the



**Figure 1: Hernial Sac opened , Initially dusky small bowel , retained to normal later.**



**Figure 2 : Needle in the rectus sheath and local anesthesia infiltrate below rectus muscle.**

**Table 1** The progress of the patient case from initial presentation to diagnosis, treatment and follow-up

Dates	Summaries from initial and follow up visits	plan
28-01-2016	Patient presented to presented to ER with Para umbilical hernia (PUH) swelling and constipation , o/e : strangulated PUH	-PUH repair under rectus sheath block ( RSB)
04-02-2016	Patient is ine , has no new complain	-Discharged
14-02-2016	Follow up : wound healed	-F/U opd appointment
11-12-2016	Follow up : Patient had recurrent PUH due to uncontrolled ascitis	- F/U opd appointment
11-01-2017	Follow up : patient had no signs of incarceration	-Follow up after 6 week then after 1 year
10-08-2017	Patient admitted to the hospital due to strangulated PUH	-PUH repair done
21-08-2017	Patient was fine had no complain	-Discharged

most common presentation of PUH. PUH is generally diagnosed by clinical examination. However, imaging studies such as ultrasound and CT scan are considered when there are symptoms and signs of complicated PUH in order to determine the sac content and the severity of obstruction. Surgery is the treatment of choice of PUH; either primary repair is performed for small defects or mesh repair is considered for large defects. PUH repair can be done under general anaesthesia via RSB. In 1899, Schleich described RSB as a surgery that involved anterior abdominal wall<sup>6</sup>. Anterior rami of the T7-T11 nerve root innervate the central area of the anterior abdominal wall located between anterior and posterior rectus sheath<sup>7</sup>. Local anaesthesia by single injection can spread cephalocaudally because tendinous intersections of the rectus muscles are not fused to the posterior sheath<sup>8</sup> (Figure 2). RSB is used commonly in paediatric patients and also in gynaecological surgery and umbilical hernia repair<sup>9,10,11</sup>. RSBs in high-risk patients have been reported in the literature; two patients diagnosed with umbilical hernia were repaired under RSB as elective cases<sup>12,13</sup>.

Kelvin How Yow Quek and Darren Shing Kuan Phua reported a case of high-risk patient diagnosed with PUH and repaired under RSB<sup>14</sup>.

Strangulated hernia is an emergency case that requires surgical intervention, hernia reduction and resection of necrotic tissue if needed<sup>1,2</sup>.

PUH repair as a day case by using local anaesthesia is a good option as it has advantages of low recurrence and infection rate.

For patients with 3 to 4 ASA class, general or spinal anaesthesia is risky, and RSB is the best alternative option in such high-risk patients<sup>3</sup>.

However, it should be noted that no cases have been published on strangulated PUH done under RSB.

### Conclusion:

Rectus sheath block is a good option and can be safely used for strangulated PUH in patients not fit for general anaesthesia.

### List Of Abbreviations:



**-RSB:** Rectus Sheath Block. **-PUH:** Paraumbilical Hernia. **-ASA:** American Society of Anaesthesiologists. **-CBC:** Complete Blood Counts. **-WBC:** White Blood counts. **-Hgb:** Haemoglobin. **-Pit:** Platelet. **-PT:** Prothrombin Time. **-INR:** International normalized ratio.

**-LFT:** Liver Function Test. **-ALT:** Alanine Aminotransferase. **-ALP:** Alkaline Phosphate. **-AST:** Aspartate Aminotransferase. **-GGT:** Gamma-Glutamyl Transferase.

**-RFT:** Renal Function Test.

### Availability of data and materials

The datasets used during the current study are available from the corresponding author on reasonable request.

### Authorship:

All authors attest that they meet the current ICMJE criteria for Authorship.

### Author contribution:

All authors contributed to the content of this manuscript.

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### Consent:

Written consent was taken from the patient for publication of this case report and the accompanying images.

### Conflict Of Interest :

Authors denies any conflict of interest.

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