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Mini laparoscopy appendectomy early experience

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Abstract
Background and Purpose: Laparoscopy in general surgery has become a gold standard for many general surgery procedures like appendectomy. Now the focus is shifting to decrease the pain and better cosmesis. Mini laparoscopy is also an effort to reduce post-operative pain and improve cosmesis, in which smaller size ports and instruments (3mm) are used. This study was designed to study the post-operative pain and cosmesis with use of 3mm trocars and instruments in combination with standard 10mm laparoscope in laparoscopic appendectomy.
Methods: We used two 3mm trocars and instruments in addition to a 10mm umbilical port (for 10 mm 30-degree laparoscope) for laparoscopic appendectomy. Total 25 cases were performed. Post-operative pain, cosmesis, complications, difficulties are noted.
Main findings: The use of 3mm instruments was safe and feasible in all appendectomies. The surgical technique was not modified. No complications have been described. Less pain at the site of insertion has been reported as compared to 5 mm ports.
Conclusions: Mini laparoscopic appendectomy with 3mm instruments is offering better cosmetic results and good pain control. It is easy with short learning curve

Keywords: Laparoscopy, Mini laparoscopy, 3mm instruments

1. Introduction
With a good success in laparoscopic procedures, surgeons are trying to be as less invasive as possible to improve post- operative outcome.
New techniques, such as mini laparoscopy or needlescopic surgery, Natural Orifice Transluminal Endoscopic Surgery (NOTES™) and single-site laparoscopy (SSL), are successfully attempted and described by various surgeons and are routinely used by the experts in the field. [1, 2]
The aim of all these techniques was to decrease post-operative pain and the size of scars. Mini laparoscopy or needlescopic surgery is defined as minimally invasive surgery with instruments that are 3mm or less and was first described in 1998 by Gagner and Garcia-Ruiz. [3]

Studies comparing SSL and NOTES™ to traditional multi-port surgery have demonstrated that these techniques are not suitable for all surgical procedures: the learning curve is longer, the triangulation is difficult, there is limited access and working space, instruments conflict, and strict selection of cases and patients is required (BMI< 30kg/m2). For these reasons, indications for SSL and NOTES™ are still limited to date. [4, 5, 6]
On the contrary, mini laparoscopy allows to perform surgical procedures with a technique similar to standard laparoscopy since triangulation and the position of instruments are the same as for standard laparoscopic surgery, while surgical trauma is reduced owing to the limited diameter of the instruments.
Aim of this study was to describe our initial experience of mini laparoscopy with the use of 3mm instruments with other 10 mm trocar in a laparoscopic appendectomy.

2. Methods and materials
We used two 3 mm trocars and a single 10 mm trocar for a laparoscopic appendectomy. A first 10 mm trocar put at umbilicus and then two 3 mm trocars put at right hypochondriac and left iliac fossa. A 10 mm trocar used as optical trocar and for specimen removal. Except the 10 mm 30 degree laparoscope all instruments used were 3mm (fig 1).

Atraumatic 3 mm grasper used to hold appendix and mesoappendix devascularised with 3 mm bipolar cautery and cut with scissor 3mm. (fig2) Base of appendix is ligated with 3mm metal knot pusher with Roeder's knot or tied with absorbable suture with 3 mm needle holder. (fig 3) Specimen removed from 10 mm port by use of needloscope. Trocar sites are closed with skin glue and not sutured for better cosmetic results.

Fig 1: Mini laparoscopic 3mm instruments

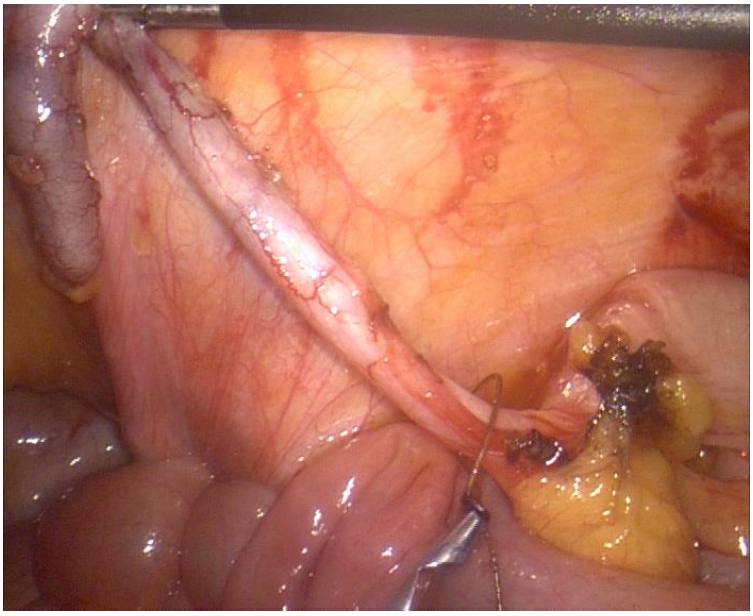

Fig 2: Mini laparoscopic appendectomy procedure

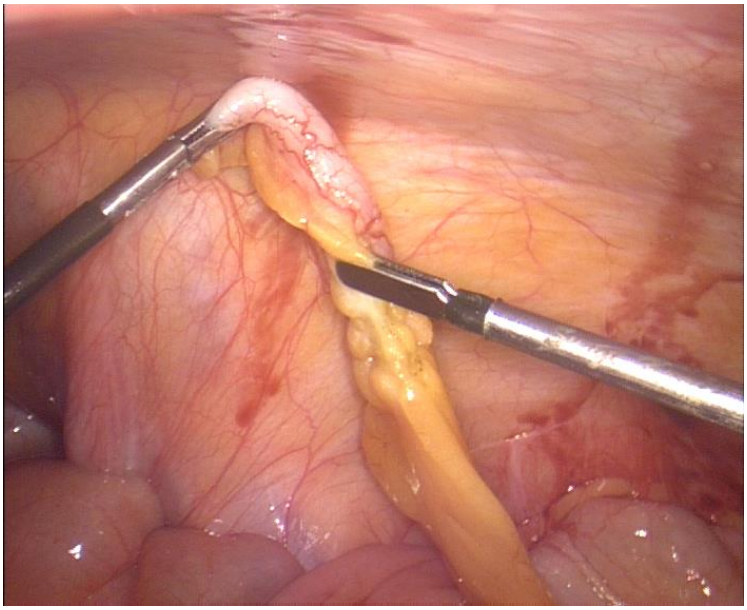

Fig 3: Mini laparoscopic appendectomy procedure

3. Results

From November 2015 to February 2016, we used 3 mm trocars and instruments, in 25 laparoscopic appendectomies in Surgery Department of tertiary level medical college. In all these procedures 3 mm instruments are used. The surgical technique was not modified in all procedures in comparison to the standard laparoscopic procedure. There were no conversions to laparotomy. However, in a single patient one 3 mm trocar in right hypochondriac region was exchanged to 5mm for the use of ultrasonic dissector due to adhesions. The average duration of surgery was comparable to standard laparoscopic procedures (45+/- 15 min). Blood loss during surgery was minimal. The length of hospital stay was similar to that with classic procedures (48 to 72 hrs.). No complications were recorded and port site scars healed well.

4. Discussion

The main objective of minimal access surgery has been to decrease the size of surgical incision. Laparoscopic appendectomy is basic procedure performed all over the world even by novice surgeon. Initial success and improvement skill encouraged surgeons to become more less invasive and they started performing surgeries through single incision (SSL) and through natural orifice (NOTES™). [1, 2]

Several advantages of SSL have emerged such as less incisional pain, shorter recovery and enhanced cosmesis. However, both of these new approaches are technically demanding, and many challenges – including loss of triangulation, poor visualization, limited access and working space, instrument conflicts – remain. [4, 5, 6]

On the contrary, Mini laparoscopy appendectomy is the continuation of minimally invasive surgery; it permits to perform the surgical procedure as in standard multi-port surgery, there is no loss of triangulation, the site of instrument insertion is maintained, the learning curve is not modified, and no patient selection is necessary. [7]

In Mini laparoscopy with use of 3 mm instruments the size of incision is very small resulting in less pain and better cosmetic results.

However, when there is need to use special energy sources like ultrasonic dissector or vessel sealer in case of difficult dissection or bleeding then conversion to 5mm port becomes necessary as these instruments are available only in 5 mm or 10 mm size.

5. Conclusions

The use of 3 mm instruments for laparoscopic appendectomy was feasible, safe, able to improve cosmesis and able to reduce postoperative pain. The transition to mini laparoscopy is easy as there is no loss of triangulation and port position can be same as routine laparoscopy.

6. References

1. Rao GV, Reddy DN. Transgastric appendectomy in humans. Presented at: World Congress of Gastroenterology, Montreal, Canada, 2006.
2. Choi Byung Seo *et al.* Feasibility of Single Port Laparoscopic Surgery in Patients with Perforated Appendicitis. Journal of Minimally Invasive Surgery. 2016; 19(1):19-24.
3. Gagner M, Garcia-Ruiz A. Technical aspects of minimally invasive abdominal surgery performed with needlescopic instruments. Surg Laparosc Endosc 1998; 8(3):171-9.
4. Podolsky ER, Curcillo PG 2nd. Reduced-port surgery: preservation of the critical view in single-port-access cholecystectomy. Surg Endosc 2010; 24(12):3038-43.
5. Podolsky ER, Curcillo PG 2nd. Single port access (SPA) surgery – a 24-month experience. J Gastrointest Surg. 2010; 14(5):759-67.
6. Wood SG, Panait L, Duffy AJ, Bell RL, Roberts KE. Complications of transvaginal natural orifice transluminal endoscopic surgery: a series of 102 patients. Ann Surg, 2013.
7. Sajid MS, Khan MA, Ray K, Cheek E, Baig MK. Needlescopic versus laparoscopic cholecystectomy: a meta-analysis. ANZ J Surg. 2009; 79(6):437-42.