LAPAROSCOPIC INGUINAL HERNIA REPAIR : Introduction of our experience

Mohammed Al Taie CABMS*, Salah al Janaby FICMS*,Hayder Aziz MBChB*
*Hilla General Teaching Hospital-Babylon/Iraq

(Received 16 /10 /2014 , Accepted 4 / 1 / 2015)

الخلاصه :

هدف الدراسة: تقييم تجربتنا في ترقيع الفتق المغبني ناظوريا مع تجارب الزملاء الاخرين.

المرضى و الطرق: تم اخذ عينه من 32 مريض يشكو 27 منهم من فتق احادي، 5 فتق ثنائي، 17 فتق مغبني ايمن، 10 فتق مغبني ايسر، كل المرضى لا يشكو من فتوق مغبنيه راجعه، لم تجرى لهم اي عمليه في البطن، اجريت لهم العمليه من قبل جراح واحد في مستشفى الحله التعليمي العام دائرة صحة بابل و تم استخدام طريقه ترقيع الفتق خارج البريتون كاملا،قطعه من شبكة بولي بروبلين استخدمت للترقيع.

النتائج: تم بنجاح اجراء العمليه لكل المرضى فقط في حالتين تم التحويل الى طريقة داخل البريتون لاكمال الترقيع، سجل رجوع الفتق في حاله واحده فقط، سجلت سيروما قي حالتين فقط و لم يسجل اي حالة التهاب.

الاستنتاجات: ننصح باستخدام طريقة ترقيع الفتق المغبني ناظوريا و خاصه للفتق الثنائي و هي امينه و بسيطه.

Abstract:

Background

Inguinal hernia repair by laparoscope is a new promising and continuously developing field for a very common surgical disorder requires in its treatment a greater combination of accurate anatomic knowledge, with surgical skills.

Objective:

This study aims to evaluate our experience of inguinal hernia repair by laparoscope and to compare it with the experience of other colleagues.

Patients and methods:

A 32 patients were operated upon in this study 27 patients had unilateral inguinal hernia, 17 of them had right inguinal hernia while 10 with had inguinal hernia and 5 had bilateral hernia. All of them had primary inguinal hernia. All of them operated on by one surgeon and in Al Hilla General Teaching hospital – Babel Health Directorate. A total extra peritoneal approach was chosen for all. A polypropylene mesh was used for repair.

Result:

All of the patients completed laparoscoically except two conversions were done to complete the operation. The rest passed smooth postoperative but two develop swelling due to simple seroma, recurrence was reported in one patient, no reported infection.

Conclusion:

This study advocate the benefit of laparoscopic approach for repair of inguinal hernia especially the bilateral one and it is simple easy to perform.

Introduction:

The history of hernia repair is the history of surgery Nyhus[1]

A hernia is a protrusion of a viscus or part of a viscus through an abnormal opening in the walls of its containing cavity. The surgical anatomy of the groin is crucial to understand and perform hernia operation.

To ensure low complication and recurrence rates, it is essential to have a complete understanding of the anatomy of the inguinal region. In his 1804 monograph, Cooper stated, "No disease of the human body, belonging to the province of the surgeon requires in its treatment a greater combination of accurate anatomic knowledge, with surgical skill, than hernia in all its varieties."[2]

A surface anatomy of the groin include the following important landmarks: anterior superior iliac spine, inguinal canal, spermatic cord and its coverings, genitalia, inguinal ligament, femoral ring with its contents, genital branch of genitofemoral nerve and ilioinguinal nerve in addition to

femoral nerve. The anatomy of the area from inside the abdomen is very important to know it in detail. Looking from inside peritoneal cavity to the pelvis, we must identify median umbilical ligament, medial umbilical ligament, and lateral umbilical ligament. We must see vas deference, Testicular vessels and we must know and identify triangle of DOOM, triangle of pain, and circle of death(corona mortis). It is very important to know myopectineal orifice and iliotibial tract.(Fig 1).

Surgical treatment include traditional(open method), which include several method and still valid till now[3,4,5]and newer minimal invasive surgery(laparoscopic surgery)[6]. The application of laparoscopic techniques to inguinal hernia repair has now produced an alternative to the open mesh repair(Lichtenstein[7] which offers several advantages over the open operation.

The advantages of laparoscopic inguinal hernia repair over open mesh repair include:

1. Less pain and quicker return to normal activity.
2. It is possible to check for the contra lateral hernia and repair it at the same time without additional incisions.
3. Suitable for bilateral inguinal hernia repair.
4. Suitable for recurrent hernia.
5. Superior cosmetic results. [8].

Till now there is an ongoing debate about whether to repair primary, unilateral inguinal hernias by the laparoscopic or the open method. Many agree that laparoscopic repair is better for bilateral or recurrent hernias, but its use for primary, unilateral hernias is controversial [8]. Lau in his history of inguinal hernia repair, pointed out that early laparoscopic surgery failed because the tenets of open surgery were not followed [9]. When the basic principles of hernia surgery were revisited, laparoscopic methods began to succeed.

We found it's crucial to have a glance about the progress of a laparoscopic hernia repair, but before that the concept of tension free repair was first demonstrated byStoppa[10],in 1965. In 1980s, Lichtenstein [11] demonstrated the value of a tension-free prosthetic repair. In the prelaparoscopic era the majorityof inguinal hernias were repaired by a no prosthetic anterior approach; and with Lichtenstein's excellent results, the use of prosthesis for anterior repairs gained universal acceptance. In 1989 Schultz et al[12] presented the laparoscopic plug and patch technique. McKennan and Laws[13,14,15] then presented a totally extra peritoneal approach in 1994.

Objective:

This study aims to evaluate our experience of inguinal hernia repair by laparoscope and to compare it with the experience of other colleagues.

PATIENTS AND METHODS:

This is a prospective study held in Al Hilla General Teaching hospital-Babel health Directorate consisted of thirty two patients for the period between Jan 2010 to July 2012.

All of them were male, 27(85%) patients had unilateral hernia,17(53%) right side and 10(32%) left side and five(15%) have bilateral hernias. No specific consideration was given for the type of hernia ,direct or indirect, because the surgical procedure is nearly identical. The age range(21-63), the cases were selected from the patient visited the consultation department in our official teaching hospital and the private clinic. The exclusion criteria included big scrotal hernia, irreducible or obstructed hernia, and obese patient BMI > 30.

All of them have no history of previous surgery neither for hernia nor any abdominal operations.

A written informed consent for surgery making clear for the patient what we mean by laparoscopic inguinal hernia repair, the benefit and probable complications.

All operations were performed by one surgeon, and the total extraperitoneal approach(TEP) was used in all patients.

All operations were performed under general anesthesia, the operations are started with small incision(10mm) either infraumbilical in the midline 20(62%) patients or near the midline opposite to the side of hernia 12(38%) patients. Then with the aid of the camera telescope a gentle dissection to open the preperitoneal space without puncturing the peritoneum and maintaining insufflations with Carbon Dioxide then two 5mm ports are inserted one to the right of the midline and the other to the left both by one to two inch (Fig. 2) midway the distance from the symphysis pubis to umbilicus into equal distances. Then with the aid of sharp and blunt dissection sometimes using electrocauterization, the whole preperitoneal space is opened and the hernia sac is dissected and reduced.

After good inspection of the anatomy and be sure that the area became clear and ready to end the operation by putting a polypropylene mesh and the size used was 10*12 cm Mesh is inserted through the 10mm port then spread to cover the whole area concentrating on the myopectineal orifice.

Regarding the bilateral hernia exactly the same except that we put two pieces for the first three patient and we used one large piece for the last two.

The mesh is left without fixation and the operation is end by deflation of the space. No drain is used.

The patient is either discharged at same night of operation or the day after and after one week all of them was seen to remove one stitch left in place on infraumblical port and given instruction if there is something to be seen later. All of them instructed to be seen every one month for one year and follow up continued successfully.

Results:

Thirty two patients had a total of thirty seven laparoscopic inguinal hernia repair for the period from Jan. 2010 to Jul.2012.

The operating time range from (45 min. to 90 min.). In regard to intra operative complications we had no significant bleeding but two cases their operations had been converted to TAPP because of inadvertent puncture of the peritoneum during the initial entrance of the first port at the stage of entering the preperitoneal space.

All the cases are inspected at day one looking for postoperative scrotal swelling or hematoma. Again a second look after one week and we found 2 cases had swelling of the scrotum due to simple seroma and both resolved after 7 days.

One case discovered as having a recurrence after three months and it was a right unilateral hernia.

No other recurrent cases are reported and no other complications are reported.

Complications	Number of cases	%
Scrotal swelling due to seroma.	2	5.4 %
Conversion from TEP to TAPP.	2	5.4 %
Recurrence.	1	2.7 %

Table (1) Postoperative complications Most of the patients were satisfied with the surgery and the result.

Discussion:

This study represents our initial experience of using a total extraperitonealapproach (TEP). The result is acceptable and promising. The learning curve for endoscopic hernia repair is one reason why most general surgeons still favor open hernia surgery.

The learning curve seems steep, more so for non-laparoscopic surgeons than for dedicated laparoscopic surgeons.

This may be because:

(1) The anatomy of the inguinal region has to be re-learnt from a laparoscopic viewpoint, i.e. from an interior view rather than the exterior approach as is taught in medical school and surgical training.

(2) It is more difficult to operate in a confined extraperitoneal space than it is in the abdomen or thorax;

(3) Regular practice is needed for endoscopic techniques of mesh placement and fixation [16.]. We used different sizes of mesh in spite of the last few cases it becomes a large size and in all cases the mesh is put without fixation and this comparable to other studies[17].

For the patient, a hernia recurrence is the biggest disappointment. In our study there is one (2.7%) case out of 37 repairs proved as a recurrence after three months visit. In addition we have two cases as seroma(5.4 %) and conversion from TEP to TAPP were two cases(5%).

We compared the results with other studies and we found, Jan F Kukleta et al in his study found 3% recurrence rate [18] . R. C. W. Bell and J. G. Price in their study reported less than 0.5% [19] . Craig Taylor et al, comparing the result of groups with mesh fixation and other group without fixation of a mesh , of course all them had TEP approach. They found a recurrence in the fixation group only one out of 247, while they reported no recurrence in non fixation group and they found fixation group more costy and they have more chronic pain in comparison with non fixation group[20] . Evangelos Messaris et al reported in a total of 274 consecutive patients all of them without recurrence within one year of follow up[21] .J. C. Lotz revised a large series of laparoscopic repair and he found, a discomfort (2-14%), no reported real pain and no recurrence[22,23]. Lau Hung and associates reported two hundred TEP where they found (1.5%) conversion into TAPP, comparing with our study (5%).Nadim khan et al, in a big randomized trial they studied 300 inguinal hernia repair they found, seroma in 3.6%, wound infection in(1.8%), and recurrence in(3.9%)[24] .

It seems that many studies and trials about laparoscopic hernia repair and not only conventional laparoscopy but single incision laparoscoy (SILS) cases were reported as early as 1998[25,26] And the surgical technique whether TEP or TAPP approaches is already being described [27] .

Conclusion:

Laparoscopic inguinal hernia repair using total extraperitoneal approach is safe, easy provided passing the learning curve. In addition, it enables the surgeon to check the contralateral side hernia and to repair it simultaneously . It enables the patient to return back home earlier and in turn to his work .

References:

1. Nyhus LM, Condon RE, eds. Hernia. 4th ed. Philadelphia: Lippincott; 1995.
2. Rutkow IM. A selective history of groin hernia in the early 19th century. SurgClin North Am 1998;78:921-940.
3. Nadim Khan, AdilBangash, MuzaffaruddinSadiq, Ain UI Hadi, Haris Hamid. Polyglactine\Polypropylene Mesh vs. Propylene Mesh: Is There a Need for Newer prosthesis in Inguinal Hernia?. The Saudi Journal of Gastroenterology 2010 16(1):8-13.
4. Kux M, Fuchsjager N, Schemper M. Shouldice is superior to Bassini inguinal herniorrhaphy. Am J Surg 1994;168:15-8.
5. Yuji Kurithara, TaturouYamakawa and associates. J Nippon Med Sch 2008; 75:28-31.

6. Neumayer L, et al. (2004). Open mesh versus laparoscopic mesh repair of
7. Lichtenstein IL, Shulman AL, Amid PK, Montllor MM. the tension free hernioplasty. Am J Surgery 1989;157:188-93.
8. Grunwaldt,MD, Steven D Schwaitzberg,MD,FACS, David W Rattner, MD,FACS, Daniel B Jones,MD,FACS. Jof American College of
9. Lau WY. History of treatment of groin hernia.World J S 2002;26:748-759.
10. Stoppa R. Wrpping the visceral sac into a bilateral mesh prosthesis in groin hernia repair. Hernia .2003;7:2-12.
11. Lichtenstein IL, Shulman AG. Ambulatory outpatient hernia surgery including a new concept; intoducing tension free repair. Int Surg. 1986;7:1-4.
12. Schultz L, Graber J, Pietrafitta J, Hickok D. Laser laparpscopicherniorrhaphy. A clinical trial preliminary results. J Laparosc Surg. 1990;1:41-45.
13. McKernan B. laparoscopic repair of inguinal hernias using a totally extra-peritoneal prosthetic approach. SurgEndosc. 1993;7:26-28.
14. Mckernan J.B. Extraperitoneal prosthetic inguinal hernia repair using an endoscopic approach. IntSurg, 1995, 80: 26-28.
15. M. L. Wall, Th. Cherian, J. C. Lotz. Laparoscopic Hernia Repair-The Best Option?.ActaChirBelg, 2008, 108, 186-191.
16. W K Cheah, JBSo, D Lomanto. Endoscopic Extraperitoneal inguinal hernia repair: a series of 182 repairs. Singapore Med J 2004; 45:6:267-290.
17. Beattie GC, Kumar S, Nixon SJ. Laparoscopic total extraperitoneal hernia repair: mesh fixation is unnecessary. J LaparoendoscAdvSurg Tech A 2000;10:71-73.
18. Jan F Kukleta, KlinikIm Park. Causes of recurrence in laparoscopic inguinal hernia repair.Journal of Minimal Access Surgery 2006;2:3:187-191.
19. R. C. W. Bell and J. G. Price. Laparoscopic inguinal hernia repair using an anatomically contoured three-dimensional mesh. Surgical Endoscopy 2010;17:11:1784-1788.
20. Craig Taylor, Laurent Layani, Victor Liew, Michael Ghusn, NicCrampton and Stephen White. Laparoscopic inguinal hernia repair without mesh fixation, early results of a large randomized clinical trial. Surgical Endoscopy 2010;22:3: 757-762.
21. EvangelosMessaris, Guy Nicastri, Stanley J. Dudrick. Total Extraperitoneal Laparoscopic Inguinal Hernia Repair Without Mesh Fixation. Archives of Surgery 2010;145(4):334-338.
22. J. C. Lotz. Inguinal Hernia Repair In The 21st Century. Jurnal de Chirurgie, Iasi, 2009;5(2):1341-1348.
23. Wall ML, Cherian T, Lotz JC. Laparoscopic hernia repair- The best option?.ActaChir Belg. 2008;108(2):186-191.
24. Nadim Khan, AdilBangash, Muzaffaruddinsadiq, AinUlHadi, Haris Hamid. Polypropylene mesh versus propylene mesh: is there a need for newer mesh in inguinal hernia? The Saudi journal of gastroenterology. 2010; 16(1):
25. Esposito C .one- trocar appendectomy in pediatric surgery. Surg.Endosc 1998; 12: 177-178.
26. Piskun G, Rajpal S. transumbilical laparoscopic cholecystectomy utilizes no incisions outside the umbilicus. J laparoscopic AdvSurg Tech A. 1999; 9: 361-364.
27. Filipovic-Cugura J, Kirac I, Kulis T, Jankovic J, Bekavac-Beslin M. single incision laparoscopic surgery (SILS) for totally extraperitoneal (TEP) inguinal hernia repair: first case. SurgEndosc 2009;23:920-921.

Fig 2
Port Sites for bilateral hernia

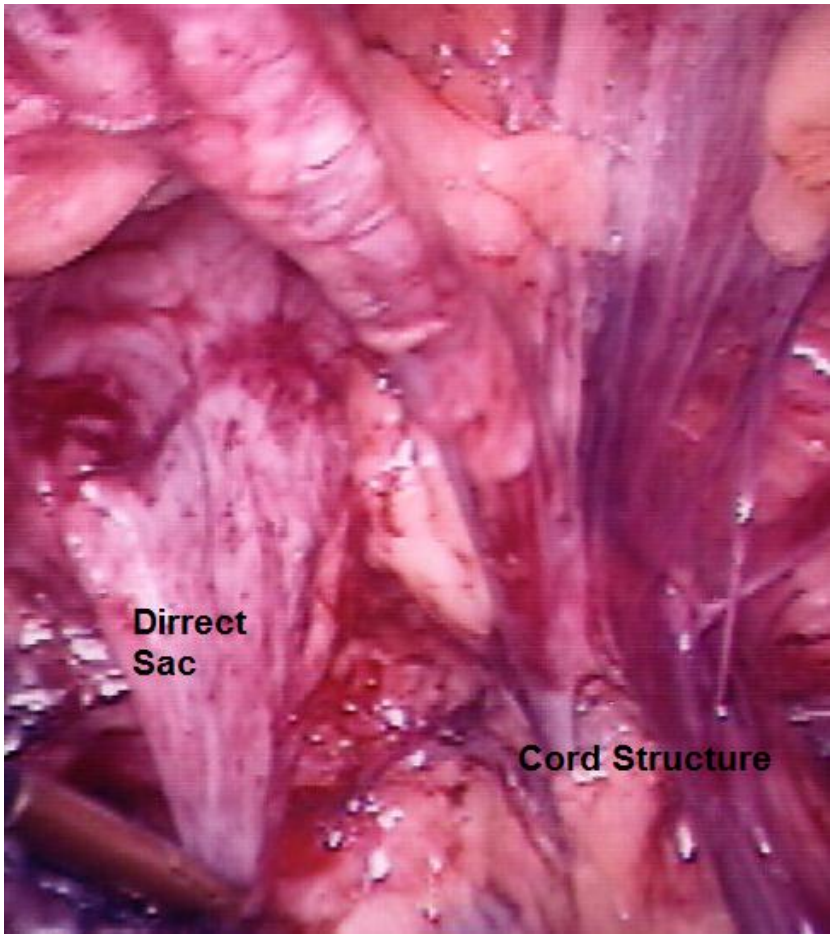

Fig 3
Left Inguinal Anatomy – preperitoneal view.

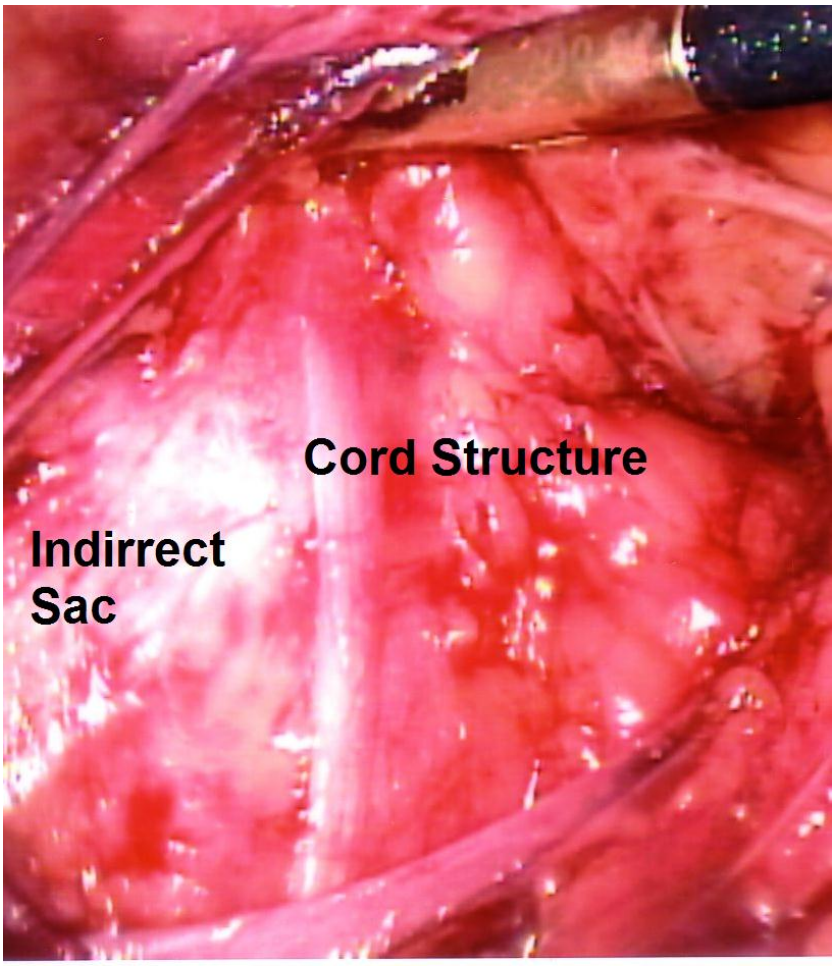

Fig4
Right inguinal hernia-preperitoneal view

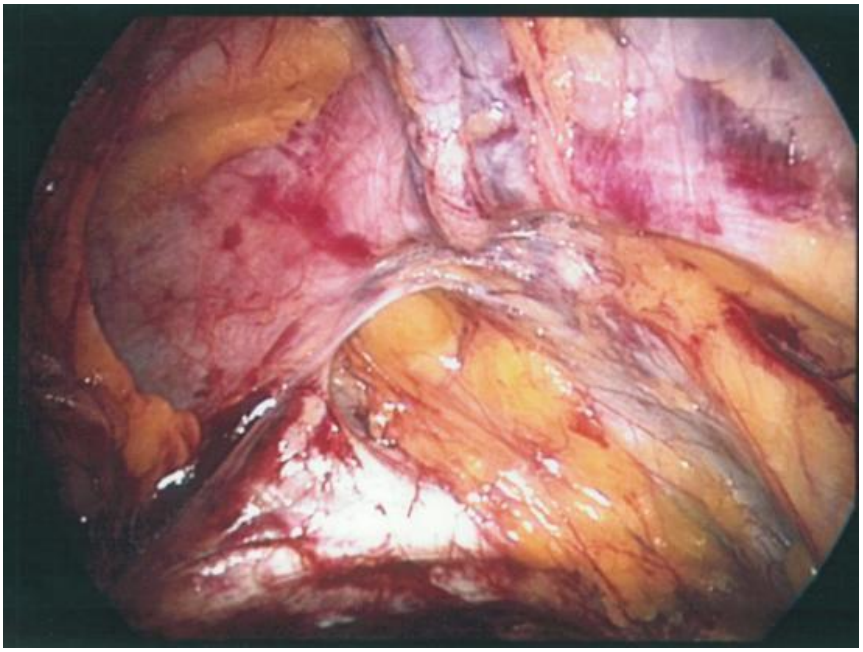

Fig 5
Sac completely released

Fig 1
Anatomy of inguinal canal-laparoscopicview .
1. Urinary bladder 2. Median umbilical fold 3. Medial umbilical fold 4. Vas deference 5. Deep ring 6. Gonadal vessels 7. Triangle of pin. 8. Triangle of doom 9. Intestine

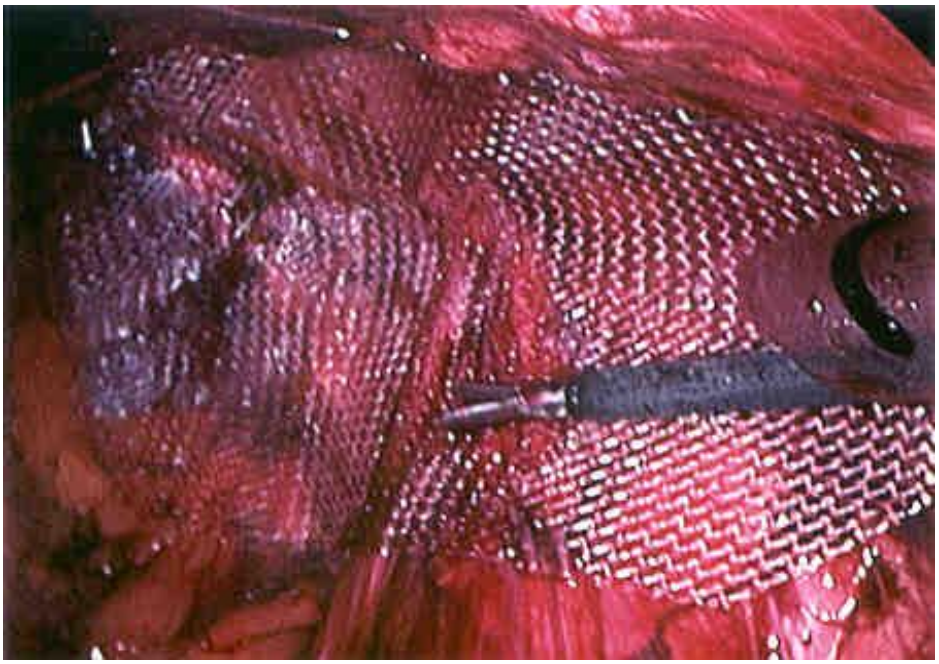

Fig 6
Mesh placed over the myoopectinal orifice