

Case series

Laparoscopic surgery for groin hernia in a third world country: a report of 9 cases of transabdominal pre-peritoneal (TAPP) repair in Yaoundé, Cameroon

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Abstract

Groin hernia repair is probably the most common procedure in general surgery. Today, in adult hernias, prosthetic repairs are accepted to be superior to "non-mesh" suture repairs. Concerning mesh repair, the (open) LICHENSTEIN and laparoscopic inguinal hernia techniques are recommended as the best evidence-based options. Nevertheless laparoscopic repair techniques still not currently practiced in sub-Saharan countries and particularly in Cameroon. From January 2011 to November 2014, a prospective laparoscopic groin hernia-specific database was queried for all adult patients in the visceral and laparoscopic surgery unit of the National Insurance Health Center of Essos (Yaoundé/Cameroon). Seven patients were recorded. All of them were male with a mean age of 49 years. Two cases were bilateral, 5 unilateral and all of them primary. There were 6 direct and 3 indirect hernias. They underwent 9 Transabdominal Pre-peritoneal (TAPP) repair and none Totally Extra-Peritoneal (TEP) procedure was done. A self-gripping overlapping flap was inserted in all cases. The mean length of the procedure was decreasing with time, from 150 min for our first procedure to 60 minutes for the last one. With a mean follow-up period of 20.2 months, the post-operatives courses were uneventful. Laparoscopic hernia repair in general and TAPP in particularly is a safe and reproducible procedure even in developing countries. African surgeons should be aware of this technique.

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Introduction

Inguinal hernia repair is probably the most common procedure in general surgery. The groin is a naturally weak point in the abdominal wall. This weakness is referred to anatomically as the myopectineal orifice of Fruchaud. The failure of the fascia transversalis to retain the peritoneum/preperitoneal fat is the fundamental cause of inguinal hernia. This fascia is weakened by congenital or acquired factors on the one hand and pressure increasing events on the other. Inguinal hernias are corrected by repairing the fascial defect in the myopectineal orifice of Fruchaud or by reinforcing the weakened fascia transversalis and bridging the defect by inserting prosthesis (mesh). Numerous repair techniques have been described since Eduardo Bassini had published his first anatomy-based repair with great success in 1890. But two revolutions in inguinal hernia surgery have occurred during the past three decades. The first was the introduction of tension-free open mesh repair by LICHENSTEIN [1] which significantly reduced the recurrence rates. The second revolution was the application of laparoscopic surgery in the treatment of inguinal hernia during the early 1990 which led to decrease in postoperative pain and faster recovery along with low recurrence rates [2]. Today, a great competition is continuing between open and laparoscopic mesh repairs. If majority of hernia repairs are still done with open techniques, laparoscopic hernia repair has gained popularity in North American and European countries. A Canadian survey reported that one third of bilateral and recurrent hernias were repaired with this technique [3] and a German survey including 14 hospitals presented a 30% ratio for laparoscopic repair techniques [4]. In Africa, This approach is still marginal; few studies are available on this and none in Cameroon in particular. We report the first Cameroonian series of laparoscopic hernia repair.

Methods

Patients

From January 2011 to November 2014, a consecutive cohort of patients who underwent a laparoscopic groin hernia repair at our institution (visceral and laparoscopic surgery unit of the National Insurance Health Center of Essos, Yaoundé/Cameroon) was analyzed prospectively. The diagnosis of hernia was based on clinical investigation with a symptomatic (reducible) groin swelling. A rectal examination was made in front of a male patient. They underwent a preoperative evaluation.

Surgical technique

A standard surgical technique was used in all patients. The patient being imperatively ordered to evacuate his bladder just before being brought to the operating room. Patient was kept in supine and under general anesthesia. For unilateral hernia, we placed three trocars including one of 10mm in supra-umbilical, by "open-coelioscopy" and two workshops ports: one in supra-pubic and the other one at the opposite iliac fossa from the hernia site. For bilateral hernias, a fourth 5mm port was inserted at the other iliac fossa. All the working ports were inserted under direct vision. The pneumoperitoneum was then created. The exploration of the contralateral inguinal ring was systematically done. The table was then placed in Trendelenburg and slightly turned toward the surgeon. The operating surgeon and the camera assistant stay on opposite side of the hernia. We realized a 4 cm peritoneal incision above the left inner inguinal ring (Figure 1). The hernia sac was found

(Figure 2) and dissected, in indirect hernia, from the vas deferens and spermatic vessels (Figure 3). The isolated sac was kept in place if direct or transected at the level of the inner inguinal ring if indirect. We extend the dissection to the pre-peritoneal fat resulting to a sufficient space to accommodate the mesh. The mesh was introduced through the optical port (Figure 4). It was always a polypropylene and polylactid mesh (10×15cm), pre-cut, slit, elliptic with a self-gripping overlapping flap. The mesh was placed into the created preperitoneal space with the slit around the spermatic cord and the overlapping flap beside the abdominal wall (Figure 5). A thorough closure of the peritoneal incision was done (Figure 6) to prevent contact of viscera with the prosthetic mesh material.

Follow-up

Clinical evaluation was carried out through personal interview with research of local complications, chronic pain and recurrence. The patient was evaluated at 2 months, 6 months, one year and then every year after surgical procedure.

Results

We recorded 7 patients, all of them male. Their median age was 49 years (range, 27-70). There were 2 cases of bilateral hernias and 5 unilateral. When considering unilateral hernias the left side was involved in 3 cases. The mean length of the symptoms was 24.3 months (range, 6-42). All these hernias were symptomatic with 2 of them having a past history of incarceration. According to the European hernia Society Classification, the M2P type was the most frequent (Table 1). All patients completed a TAPP procedure in a median operative time 106.7 min; we noticed a decreases of the operative time as the number of procedures increased, range from 150 min for our first procedure in 2011 for 60 min for our last procedure of 2014 (Figure 7). None intraoperative complications were noticed. An antibiotic prophylaxis was introduced in all cases. All the patients were discharge after 48 hours. After discharge, we recommended a limitation on heavy weight lifting for 2-3 weeks. The median follow-up in our outpatient clinic was 20.2 months (range, 6-42). The postoperative course was uneventful in all cases without chronic pain and recurrence.

Discussion

Even if some recent papers have reported that watchful waiting is a safe and acceptable option for minimally or asymptomatic hernias [5], traditionally almost all inguinal hernias are referred for surgical treatment following diagnosis. If numerous repair techniques are described in literature, the European Hernia Society recommend (Grade A) with a level 1 of evidence that all male adult (>30 years) patients with a symptomatic inguinal hernia should be operated using a mesh technique? [6]. When considering a non-mesh repair, the shoulder ice technique is the best one [6]. The (open) LICHENSTEIN and endoscopic inguinal hernia techniques are recommended as the best evidence-based options for the repair of primary unilateral hernia [6]. For the repair of recurrent hernias after conventional open repair, endoscopic inguinal hernia techniques are recommended [6]. When comparing open mesh (LICHENSTEIN) versus endoscopic mesh techniques, two meta-analysis published in 2005 [7,8] concluded that "they are significant advantages for endoscopy including lower incidence of wound infection, hematomas and chronic pain/numbness, with earlier return to normal activities or work (6 days)". The use of

laparoscopic approach for the treatment of groin hernia in Africa is still marginal; few studies are available mainly in South Africa [9]. Some authors even raise the question of whether laparoscopic inguinal hernia repair in Africa is utopia or realism [10]. This fact can be explained by the high cost for the local economy of laparoscopic instrumentation and prosthetic implants, and in another hand by a lack of training of African surgeons on this technique. However, since few years, there is a growing interest in video-assisted surgery throughout the continent. Our study, the first Cameroonian series on this subject, is a contribution to demonstrate that laparoscopy can and should be part of the provision of care of an African surgery department at instances of cases of inguinal hernias. However, careful patient selection is to be made without getting carried away by enthusiasm. Since it is generally believed that TAPP is easier to teach and learn than Totally Extra-Peritoneal (TEP) repair, we decided to start our experience in laparoscopic hernia repair by this technique. Trocars positioning is particular in our approach. Usually in TAPP, the three trocars are placed at the umbilical level with the 2 working ports inserted at both external side of the rectus abdominus. We prefer to insert one working port in supra-pubic and the other one in right iliac fossa for a left hernia (and in left iliac fossa for a right groin hernia). This positioning allow us to have a better triangulation between the ports and the hernia site and we feel more "comfortable"?. Our mesh was self-gripping and didn't require a fixation. The limited number of procedures in our series does not allow us to draw large conclusions. However, we can notice that the length of surgery decreased with experience (Figure 5); there was a decrease of about 55% of operating time between our first and ninth procedure. The shorter recovery time and shorter off work period after a laparoscopic hernia repair could compensates the increased hospital cost compared to open repair. We think that, the vulgarization of health insurance in our country, and in Africa in general, could lead to the same result. Residents and surgeons should be aware of this technique.

Conclusion

Laparoscopic hernia repair in general and TAPP in particular is a safe and reproducible procedure even in developing countries. African surgeons should be aware of this technique and, endoscopic hernia repair training with adequate mentoring should then be started with junior residents.

What is known about this topic

- All male adult (> 30 years) with a symptomatic inguinal hernia should be operated using mesh techniques.
- Endoscopic mesh techniques for hernia repair have significant advantages on LICHENSTEIN including lower incidence of wound infection, hematomas and chronic pain.

What this study adds

- Laparoscopic hernia repair is reproducible, feasible, safe and effective in Africa.
- To have a better triangulation between the ports and the hernia site, trocars positioning can be improved by inserting one working port on supra-pubic and the other one on the iliac fossa opposite from the hernia site.

Competing interests

The authors declare no competing interests

Authors' contributions

All persons designated as authors above, qualify for authorship, they took active part in the management of these patients and write up of this manuscript. All authors have read and agreed to the final manuscript.

Table and figures

Table 1: Type of hernias according to european hernia society classification

Figure 1: Peritoneal incision above the left inner inguinal ring

Figure 2: Indirect hernia sac

Figure 3: Indirect hernia sac dissected from the spermatic cord

Figure 4: Mesh introduction

Figure 5: Mesh placement

Figure 6: Closure of the peritoneal incision

Figure 7: Operative time decreased as the number of procedures increased

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Table 1: type of hernias according to the european hernia society classification

| Type Of Hernia | Number |
|----------------|--------|
| M2P | 4 |
| M3P | 2 |
| L2P | 2 |
| L3P | 1 |

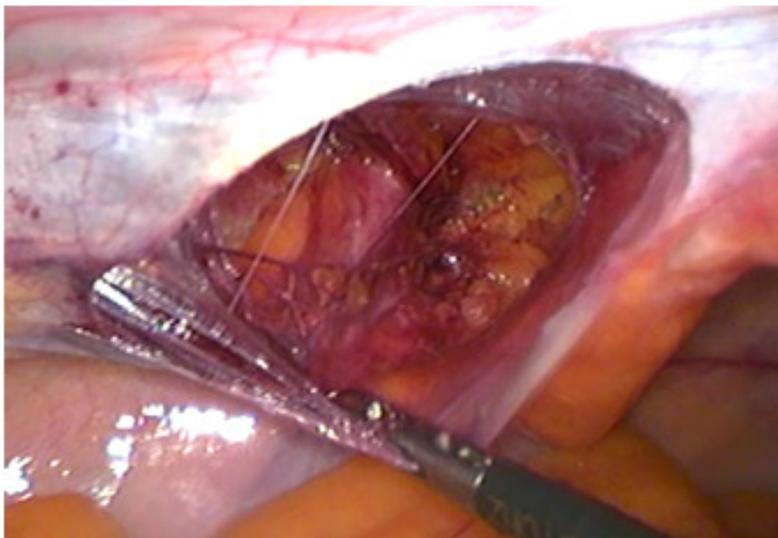


Figure 1: Peritoneal incision above the left inner inguinal ring

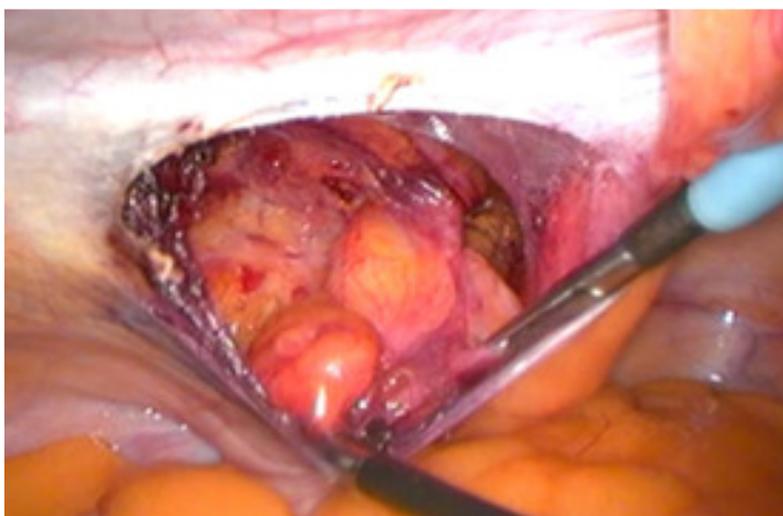


Figure 2: Indirect hernia sac



Figure 3: Indirect hernia sac dissected from the spermatic cord

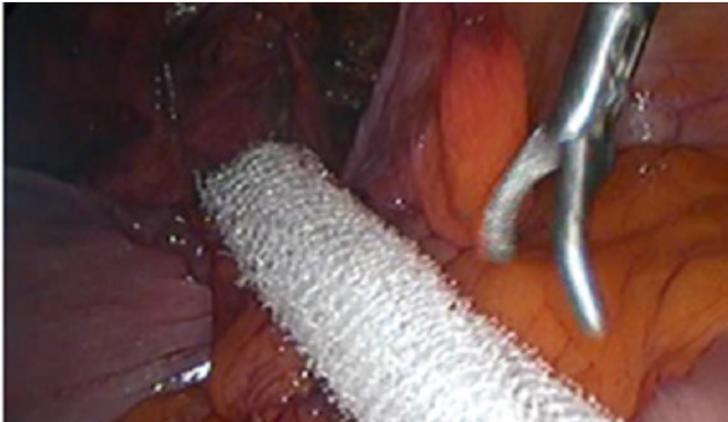


Figure 4: Mesh introduction



Figure 5: Mesh placement

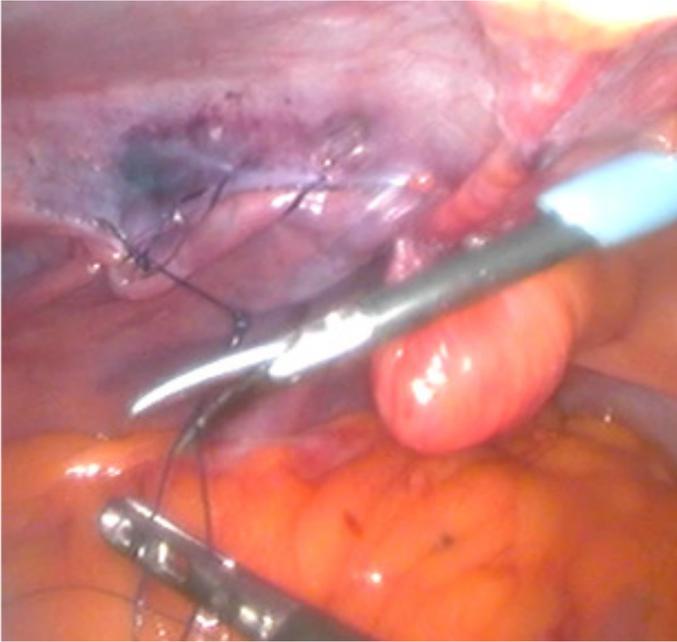


Figure 6: Closure of the peritoneal incision

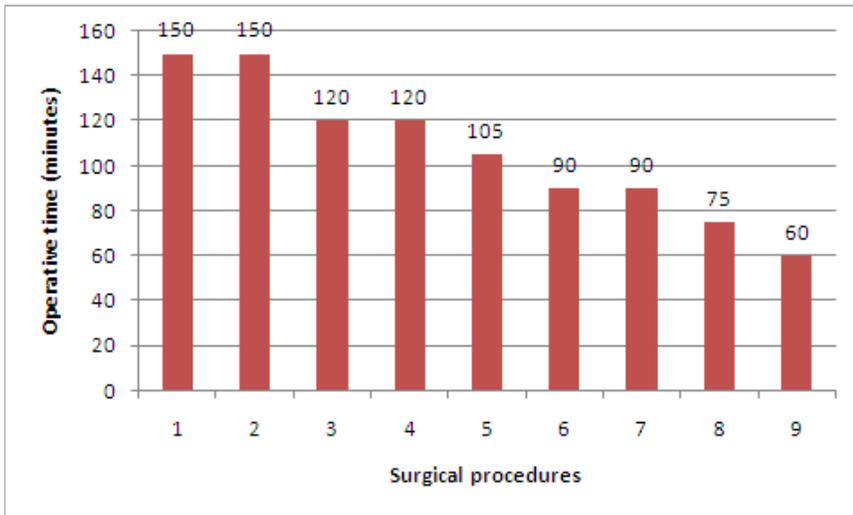


Figure 7: Operative time decreased as the number of procedures increased