RESEARCH ARTICLE

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Open mesh repair of anterior ventral hernia repair at retro-rectus plane with midline mesh fixation only and periphery tension free

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Abstract

Background: Anterior ventral hernias included paraumbilical, umbilical, diastases recti, and incisional hernias. Retro-rectus mesh repair is good technique, but mesh fixation on periphery make technique more difficult and more invasive. In this study, through retro-rectus mesh repair the mesh fixed only in midline only and leaving mesh edges free. **Patients and Methods:** This study included 27 patients (17 females and 10 males) suffering from anterior ventral hernias (11 incisional hernia and 16 paraumbilical hernia with diastases recti). This patients group were subjected to open mesh repair at retro-rectus plane. Where mesh put at retro-rectus plane with fixation the mesh in midline leaving other mesh parts free. Then, the both recti are approximated in midline over the mesh with drain. Follow up period ranged from 9 to 18 months for any complications at the site of operation by clinical examination and abdominal ultrasonography. **Results:** The operation time ranged from 45 to 90 minutes (mean 60 minutes). The drain removed after operation by seven days. Seroma formation occurred in 7 patients, which treated by multiples aspiration. No hernia recurrence happened during period of follow up. **Conclusion:** Our technique for mesh repair of anterior ventral hernias is easy, less invasive, and associated with good results.

Keywords: Midline mesh fixation, Peripheral tension free, Hernia repair.

INTRODUCTION

Anterior ventral hernia or midline abdominal hernia is any hernia which occurred at area lies between both lateral borders of rectus muscles [1]. Still open mesh repair technique is better specially when hernia defect is big as in incisional hernia or multiple defect or diastases recti [2,3]. Better results were obtained when mesh put at retro-rectus plane (sublay) and approximated both recti over mesh [4,5]. But before our study, the mesh fixed at retro-rectus plane on the mesh periphery [6]. This make the technique more difficult and more invasive. In this study, the mesh was fixed in midline only leaving mesh edges tension free.

PATIENTS AND METHODS

Twenty-seven patients (17 females and 10 males) were included in this research suffering from anterior ventral hernias (11 incisional hernias and 16 paraumbilical hernias with diastases recti). The mean age was 47.6 years (ranged from 23 to 65 years). The research was approved from Ethical Committee of Zagazig University and starts at August 2016 to February 2018. Consent was taken from all patients and including their data in this study. Operative technique: under general anesthesia and after sterilization of operative field, the skin incision was put in old scar in incisional hernia or transverse in paraumbilical hernia with diastases recti. The retro-rectus plane is reached directly without much subcutaneous dissection by longitudinal incisions on the medial borders of rectus sheaths on both sides. Then, the posterior rectus sheaths on both sides are approximated by continuous suture using Vicryl No. 0 on round needle. Polypropylene mesh was prepared to cover posterior rectus sheaths on both sides down to umbilicus by about 5 cm. The mesh was fixed in midline over approximated midline of posterior rectus sheaths using Prolene continuous suture No. 0 on round needle. Then, the mesh was spread at retro-rectus plane on both sides without mesh edges fixation (peripheral tension free). The anterior rectus sheaths on both

sides were approximated using continuous Prolene suture No. 1 on round needle. The wound was closed with suction drain passing through retro-rectus and subcutaneous planes figure (1a – 1--) and figure (2a – 2--). Broad spectrum antibiotic drug was given for all patients for one-week post-operative. Early ambulation was allowed. Oral feeding was started after 24 h. postoperatively unless the intestinal sounds were absent or there was abdominal distension. The mean follows up period was 14 months (ranged from 9 to 18 months) for any complications at the site of operation site by clinical examination and abdominal ultrasonography.

RESULTS

The mean operative time was 60 minutes (ranged from 45 to 90 minutes). The traction was applied on mesh and distance between each suture must be narrow (5 mm) during midline mesh fixation to prevent mesh corrugation. Suction drain was removed after 7 days postoperative. Seroma formation occurred in 7 cases on 10 to 15 days postoperative which diagnosed by clinical examination and abdominal ultrasonography. This Seroma was treated by multiples aspiration under aseptic condition. No hernia recurrence was noticed at site of operation during period of follow up.

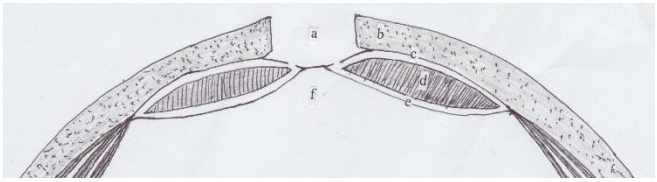

Figure 1a: (a) skin incision. (b) subcutaneous tissue. (c) anterior rectus sheath. (d) rectus muscle. (e) posterior rectus sheath. (f) abdominal cavity. Limited subcutaneous dissection was done and reach to retro-rectus plane through longitudinal incision on medial border on both rectus sheaths.

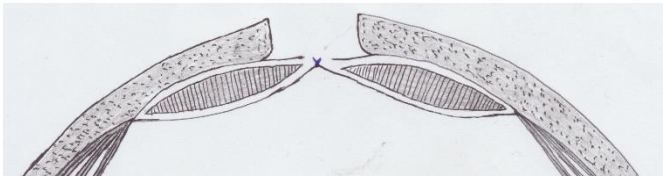

Figure 1b: The posterior rectus sheath on both sides were approximated in midline using continuous Vicryle suture.

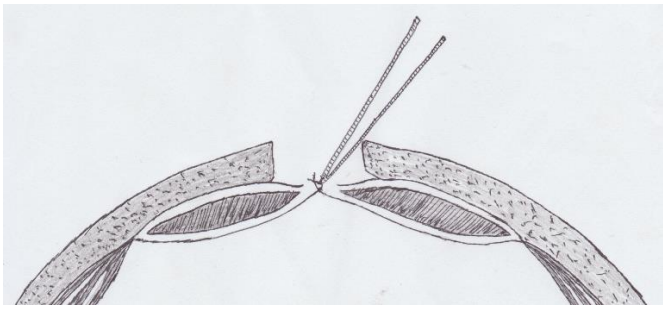

Figure 1c: The suitable prolene mesh to cover all posterior rectus sheath on both sides was prepared and fixed at midline by using continuous prolene suture

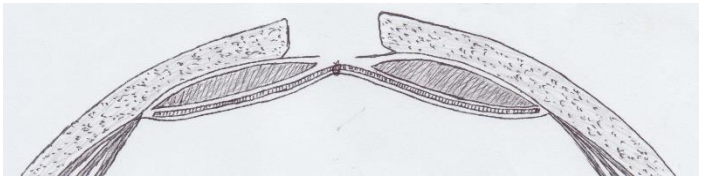

Figure 1d: The mesh was spread at retro-rectus plane without peripheral fixation.

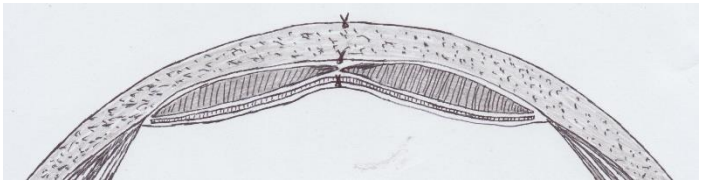

Figure 1e: The anterior rectus sheath of both sides was closed over mesh using continuous prolene suture with drain passing through retro-rectus and subcutaneous planes.

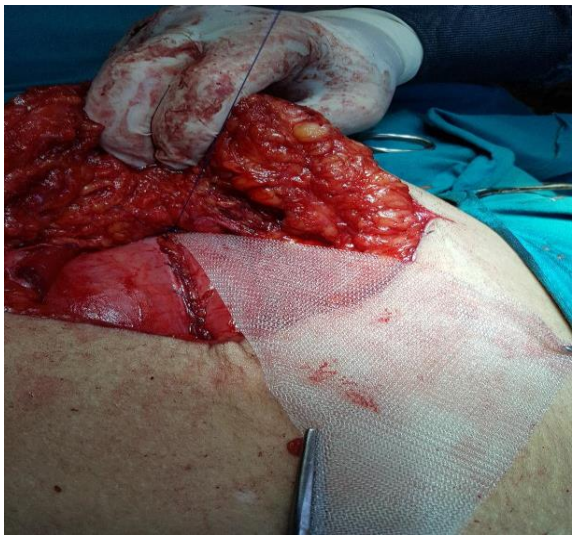

Figure 2a: Starts of midline mesh fixation after finishing of approximation of two posterior rectus sheaths on both sides.

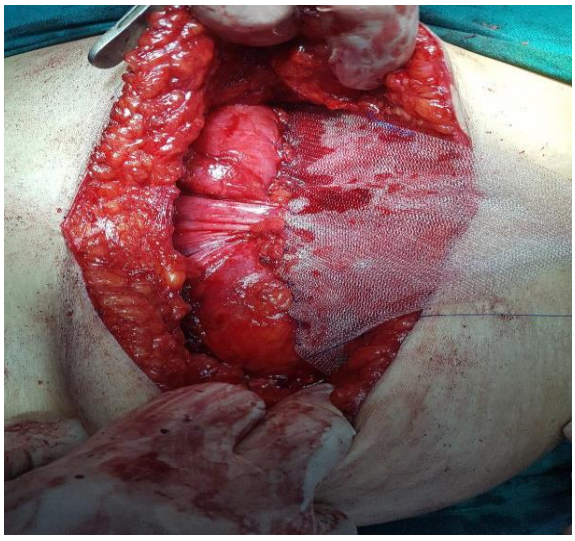

Figure 2b: Midline mesh fixation was finished.

Figure 2c: The mesh was spread under both recti (retro-rectus plane= sublay plane) to cover all posterior rectus sheaths

Figure 2d: Approximation of both recti muscles and anterior rectus sheaths to cover mesh in midline was done. The wound was closed with drain passing through retro-rectus and subcutaneous planes.

DISCUSSION

The introduction of laparoscopic technique for hernia repair is an increasingly used alternative to open hernia repair surgery 7. Many studies reported many advantages of laparoscopic technique as easy, less invasive, short hospitalization, faster return to work. This right when hernia defect is small (less than 5 cm in diameter), not associated with much adhesion as in big incisional hernia or associated diastases recti 8,9. In paraumbilical hernia with diastases recti need to open both rectus sheaths to reconstruct linea alb and approximate both rectus muscles. The laparoscopic hernia repair may be associated with many disadvantages as bleeding, intestinal injury, intestinal adhesion, intestinal fistula, intestine entrapping between mesh and abdominal wall. Mesh bulging is common complication in laparoscopic repair in huge abdominal hernia or diastase recti because cannot do hernia defect closure over mesh 10,11. The retro-rectus mesh repair by open technique is good procedure for management of big incisional hernia or paraumbilical hernia with diastases recti 1. But, by traditional technique where mesh was fixed at the mesh edges more invasive and causing much pain at sites of mesh fixation when tension applied on mesh as in case of abdominal obesity or pregnancy. So, in our technique the mesh was fixed only at midline leaving mesh periphery free.

CONCLUSION

Our technique for mesh repair of big incisional hernia or diastases recti is easy, less invasive, and associated with good results.

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Conflicts of interest: None declared

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