

Modern Trends in Management of Incisional Hernia

Essay

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Incisional hernia is a common long term complication following abdominal surgery as it is estimated to occur in approximately 11% of cases. However the true incidence is probably higher since the majority are asymptomatic.

The patient with incisional hernia commonly presents with unremarkable clinical symptoms, in the first instance. Most patients give a history of a lump or bulge that, elicited by physical activity such as exercise or coughing, and disappearing after stopping the activity.

Sonography is a helpful diagnostic aid, particularly in small or barely palpable hernias, or in obese patients, as it is non-invasive, time and cost-saving, readily repeatable, and practically risk-free. Besides location and size, ultrasonography allows the determination of hernial content, as well as excluding important differential diagnoses such as lymphoma or hematoma.

The treatment of ventral incisional hernia is operative repair, and three general classes of operative repair have emerged in the modern era. These techniques include primary suture repair of the hernia, open repair of the hernia with prosthetic mesh, and laparoscopic incisional hernia repair.

Many variations of mesh repair for the incisional hernia have been described (The onlay technique, The inlay technique & The underlay technique).

Generally, the task of a surgical mesh implant is to provide biomechanical strength to the attenuated fascial structures. Surgical mesh is designed to withstand the tension forces acting on the abdominal wall. Further, the mesh must not impede and ideally should facilitate the healing process of the hernial defect by encouraging ingrowth of the body's

LIST OF TABLES

1-Table 1: Occult laparotomy wound dehiscence by
postoperative day 30.....(p: 32).

Contents

≈Introduction .

≈Anatomy of anterior abdominal wall.

a-Surgical anatomy .

b-Laparoscopic anatomy.

≈Pathophysiology&Biochemical aspects
of incisional hernia .

≈Modern trends in management of
incisional hernia .

≈Summary&Conclusion .

≈References.

≈Arabic summary.

LIST OF ABBREVIATIONS

1-ACE: Angiotensin converting enzyme

2-CT: Computed Tomography.

3-ePTFE: expanded Polytetrafluoroethylene.

4-FS: Fibrin Sealants.

5-GERD: Gastro Esophageal Reflux Disease.

6-IPOM: Intraperitoneal Onlay Mesh Technique.

7-ITU: Intensive Therapy Unit.

8-LVHR: Laparoscopic Ventral Hernia Repaire.

9-MMP: Matrix Metallo-Protease.

10-ORC: Oxidised Regenerated Cellulose.

11-PM: Provisional Matrix.

12-PP: Polypropylene.

13-PTFE: Polytetrafluoroethylene.

14-PVDF: Polyvinylidene Fluoride.

15-TIMP: Tissue Inhibitors of Matrix metalloProtease.

LIST OF FIGURES

- 1-Fig. 1.1 (A).** Blood supply – anterior abdominal wall.....(p: 6).
- 2-Fig. 1.1 (B).** Blood supply - anterior abdominal wall.....(p: 7).
- 3-Fig. 1.2.** Nerve supply – anterior abdominal wall...(p: 8).
- 4-Fig.1.3(A).**Nerve supply in relation to various incisions.....(P: 9).
- 5-Fig. 1.3 (B).** Nerve supply in relation to various incision.....(p: 10).
- 6-Fig. 1.4.** Musculature – anterior abdominal wall....(p: 12).
- 7-Fig. 1.5.** Musculature – anterior abdominal wall...(p: 14).
- 8-Fig. 1.6.** Musculature – anterior abdominal wall....(p: 15).
- 9-Fig. 1.7.** The rectus sheath at various levels.....(p: 16).
- 10-Fig.1.8 (A).**The umbilical ligaments.....(p: 18).
- 11-Fig. 1.8 (B)** The umbilical ligaments.....(p: 19).
- 12-Fig. 1.9 (A)** Vessels of the anterior abdominal wall and the corona mortis.....(p: 26).
- 13-Fig. 1.9 (B)** Vessels of the anterior abdominal wall and the corona mortis.....(p: 27).

14-Fig. 1.9(C) Vessels of the anterior abdominal wall and the corona mortis.....(p: 27).

15-Fig. 1.9(D) Vessels of the anterior abdominal wall and the corona mortis.....(p: 28).

16-Fig.2.1. A normal wound-healing cascade. In otherwise normal tissue, without impediments to wound healing, sequential cellular and molecular elements of tissue repair are activated.....(p: 35).

17-Fig.2.2. During the initial "lag phase" of healing, the laparotomy wound is mechanically weakest. As surgical patients recover, increasing abdominal wall loads can cause acute wound failure.....(p: 36).

18-Fig. 2.3. Incisional hernias occur when suture fails, suture lines are too loose, or suture pulls through the tissue adjacent to the wound. This develops before the laparotomy wound scar is mechanically capable of withstanding the distractive forces. The provisional matrix (PM) is composed of immature and weak matrix glycoproteins and collagen isoforms. In addition, the scar-to-wound interface is not developed.....(p: 41).

19-Fig. 2.4. The peritoneal view of a rodent model of incisional hernias. The hernias develop welldefined hernia rings, hernia sacs, and visceral adhesions, all characteristic of the incisional hernias that develop in humans. Modeling like this confirms biologic limits of laparotomy wound repair and suggests that pathologic changes occur in the wound and musculature of the abdominal wall following wound failure in otherwise normal tissue.....(p: 46).

20-Fig. 3.1: Patient with incisional hernia.....(p: 51).

21-Fig. 3.2.	Sonographic image of a fascial defect (arrows) with herniation (outlined).....	(p: 54).
22-Fig.3.3.	An incisional hernia diagnosed by CT....	(p: 55).
23-Fig.3.4.	Simple fascial closure.....	(P; 63).
24-Fig.3.5:	Continuous mass closure of hernial opening, onlay darn reinforcement of repair.....	(p: 64).
25-Fig.3.6:	Keel repair.....	(p: 65).
26-Fig.3.7:	Double breasted method.....	(p: 66).
27-Fig. 3.8.	Onlay Graft.....	(p: 77).
28-Fig.3.9.	Inlay graft.....	(p: 78).
29-Fig.3.10:	sublay graft.....	(p:80).
30-Fig.3.11.	Approximation of posterior sheath.....	(p: 81).
31-Fig.3.12:	placement of the mesh in the retrorectus position.....	(p: 81).
32-Fig.3.13.	Transabdominal suture fixation.....	(p: 82).
34-Fig.3.14.	Combined onlay and sublay graft.....	(p: 83).
35-Fig.3.15.	wrap around mesh reinforcement of wound edges.....	(p: 83).
36-Fig.3.16.	modification of retromuscular Rives-Stoppa technique with preperitoneal retrofascial mesh placement.....	(p: 85).
37-Fig.3.17.	Camera with camera control unit.....	(p: 104).

38-Fig.3.18.	Telescope.....	(p: 105).
39-Fig.3.19.	Light source.....	(p: 106)
40-Fig.3.20.	Automatic electronic gas insufflator....	(p:107).
41-Fig.3.21.	Veress needle.....	(p: 109).
42-Fig.3.22.	Trocar with conical tip, trocar with pyramidal tip.....	(p: 109).
43-Fig.3.23.	The view of the defect and trocar sites..	(p: 121).
44-Fig.3.24.	Intraabdominal insertion of a large prosthetic mesh during minimally invasive incisional herniorrhaphy. The schematic shows a prepped and draped abdomen with the plastic sleeve (A) placed transabdominally through two port sites (10–12 mm on the near side and 5 mm on the far side). The mesh (B) has been delivered through the sleeve into the abdomen in the direction of the arrow. The incisional hernia (C) and two other port sites (D) are shown unoccupied for simplicity.....	(p: 124).
45-Fig.3.25.	The techniques used to insert the mesh. (A) Simple roll: tight roll along the longest edge. (B) Diagonal roll: tight roll along the longest axis (diagonal marked with black arrow). (C) Roll and bind: the optimal roll (either simple or diagonal) with additional vicryl tie as binding. (D) Unprepared: grasped by the corner, the diagonal length of the mesh is presented head-on to the port..	(p: 125).
46-Fig.3.26.	Mesh with sutures at four corners.....	(p: 128).

47-Fig.3.27. A: Suture fixation of mesh (four points) and tack application points. **B:** Suture fixation of mesh (six points) and tack application points.....(p: 130).

48-Fig.3.28 Meshwith self-centering suture attached(p:131)

49-Fig.3.29. Needle being passed through the centre of the defect to position the mesh.....(p:132).

50-Fig.3.30.Funada's original gastropexy device and our modified device. A Funada's gastropexy device: The two needles are parallel. B Modified device: Although the 21-gauge needle through which the nylon thread is inserted is bent, the thread can still pass easily through it.....(p:134).

51-Fig.3.31. Laparoscopic view of a thread snared with Funada's device. A Two needles penetrate the mesh transabdominally. B A snare is advanced through a needle. C A thread is inserted into the snare through another needle. D A thread is caught by a snare.....(p:135).

52-Fig.3.32. Laparoscopic view of our new method. A Mesh fixation with the modified device. Note that the distance between the two needles is shorter than that of original device. B After mesh fixation. Note that metallic staples are not used.....(p:136).

53-Fig.3.33. A 2/0 nonreabsorbable suture on a straight needle is inserted through the abdominal wall and through the mesh while a laparoscopic forceps grasps the needle inside the abdomen.....(p:137).

54-Fig.3.34. Suspension of the mesh using a needle holder and four straight transcutaneous needles.....(p:139).

- 55-Fig.3.35.** Application of diluted fibrin glue.....(p:139).
- 56-Fig.3.36.**Fibrin glue completely polymerized.....(p:140).
- 57-Fig.3.37.**A. Strong Protack adhesions on the loop.
B.Internal view of the laparoscopic closure of the defect.....(p:141).
- 58-Fig.3.38.** Lysis of adhesions and attempted reduction of incarcerated omentum.....(p: 148).
- 59-Fig.3.39.** Transection of incarcerated omentum within the hernial sac.....(p: 148).
- 60-Fig.3.40.**Removal of incarcerated omentum via skin incision over the hernia sac.....(p:149).
- 61-Fig.3.41.**Mesh insertion via the opened hernia sac.....(p:149).
- 62-Fig.3.42.** Completed hernia repair with mesh ready for fixation.....(p:149).
- 63-Fig.3.43.** The fascial defect (a) was shown as well as the first (b) and the overlying mesh (c). A further mesh is used for overlap down to the space of Retzius (d).....(p:152).
- 64-Fig.3.44.** *Blue* 10-mm port for camera/laparoscope; **a** 5-mm port for right working hand; **b** 5-mm port for left working hand; *black* umbilicus; **c** 5-mm port for retraction of the large bowel.....(p:156).
- 65-Fig.3.45.**Left lumbar incisional hernia: **a** spleen; **b** splenic flexure; *arrows* superior border of the defect.....(p:157).

66-Fig.3.46. Suturing of the defect with monofilament material; *white line* shows the margins of the hernial defect.
.....(p:158).

67-Fig.3.47. Completion of suturing of the defect ...(p:158).

68-Fig.3.48. **a** Fixing the polypropylene mesh over the defect with sutures; **b** larger composite mesh covering the polypropylene mesh and the weak area.....(p:159).

Introduction

Incisional hernia is defined as a bulge visible and palpable when the patient is standing, seen over previous abdominal scar and often requiring support or repair (***Leaper et al., 2002***).

It is a common complication of abdominal surgery, reported in up to 11 percent of patients generally and in up to 23 percent of those who develop postoperative wound infection (***Leaper et al., 2002***).

Treatment involves further major surgery and the results may be poor, with recurrence rates of up to 49 percent reported. The high recurrence rates prompted recommendations of cautious attitude to surgical treatment of incisional hernia in the mid 1980s (***Salameh et al., 2002***).

Traditional open hernia repair necessitates opening the previous incision and dissection of the peritonized sac followed by closure of the defect by either sutures or prosthetic mesh (***Klingue et al., 2005***).

The need to open all or part of the previous incision and the lateral dissection results in excessive soft tissue mobilization and trauma (***Klingue et al., 2005***).

This has led to a complication rate of up to 20 percent involving the wound, exposure and infection of the mesh, fistula formation, and other problems. But in laparoscopic repair, large prosthetic mesh is placed intraperitoneally, overlapping the defect by at least 3 to 5 cm. The laparoscopic approach eliminates the

extensive tissue dissection needed with the open approach and its attendant complications (**Lomanto et al.,2006**).

The advantages of laparoscopy include precise identification of the location and type of hernia,excellent exposure,accurate placement of mesh,avoidance of major dissection or injury to surrounding structures(e.g., nerves,ureter),excellent cosmetic result and short post-operative convalescence (**Faddegan et al.,2008**).

The laparoscopic approach appears to be effective in complex patients, such as the obese and those who have failed prior open repairs.Obese patients especially may benefit because of the smaller wounds and, theoretically, decreased wound complications (**Perrone et al., 2005**).

Laparoscopic incisional hernia repair is a better procedure than the traditional anterior approach.It is associated with a shorter operative time and hospitalization, a faster ability to return to work, and a lower rate of complications. Although the laparoscopic procedure is more expensive, a significantly shorter hospitalization reduces total costs to a level comparable to that of open surgery (**Olmi et al.,2007**).

Finally, there are several studies directly comparing the open and laparoscopic incisional hernia repairs. They demonstrated that patients undergoing a laparoscopic incisional hernia repair were 58% less likely to develop a postoperative complication compared to undergoing an open repair (**Rudmik et al.,2006**).