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VENTRAL HERNIA REPAIR DUE TO LARGE DEFECT OF ABDOMINAL WALL CAUSED BY RIGHT ILIAC CREST FLAP AND MYOCUTANEOUS FLAP HARVESTING

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ABSTRACT

Background: postoperative ventral hernia is one of the most common complications of surgery pertaining to the abdominal wall. Whether a hernia will occur depends on the size and location of the incision of the abdominal wall.

Case study: We report a case of a 65 years old male patient who developed a large ventral hernia after right iliac bone and myocutaneous flap harvesting for reconstruction purposes after maxillectomy. The intraoperative find was a 40 cm wide hernia sack with a hernia neck 15 cm in diameter. The right iliac wing was the inferior border of the hernia neck. The patient underwent anterior ventral hernia repair with implantation of polypropylene mesh into the preperitoneal space.

Conclusion: Placement of preperotoneal mesh in case of postoperative hernia reduces possibility of recurrence or infection.

Keywords: ventral hernia, anterior hernia repair, preperitoneal mesh, bone flap

INTRODUCTION

Ventral hernia is a protrusion of the tissue or an organ through an opening in the abdominal cavity. If it appears as a result of a muscle weakness caused by a previous abdominal surgery, it is called incisional hernia. Ventral hernia can slowly develop during a longer period of time, whether it is a result of a congenital defect or it develops as a result of gradual developing muscle weakness. There is no certain way in which we can predict which patients are the most likely to develop ventral hernia as a post procedure condition, but it will most likely happen in those who are smokers and have a preexisting case of diabetes mellitus, obesity or those who have been subjected to an emergency operation [1,2].

Approximately 50% of all incisional hernia develop during the first 2 years after the procedure and the percentage becomes even higher, increasing to 74% in a 3-year period and it can develop after any kind of procedure that is being done in the abdominal cavity [3-5].

The incidence also depends on the location and the size of the incision made during the procedure [6,7]. The highest rate has been documented in the case of medial laparotomy with the incidence being between 3 and 20% [4].

Depending on the size of the hernia, there are different approaches in the possible ways of treatment, in some cases, only simple suturing is enough, while in other situations there is a need for reconstruction of the muscle wall by forming a flap or by using a synthetic material, such as mesh. The operation approach can be laparoscopic or a classic open type surgery can be performed [8].

There are different indications in which the surgery is necessary, and it can go from a simple subjective sensation of an excruciating pain, and it can be performed in some more serious cases, because of incarceration and even strangulation of the hernia.

Ventral hernia is one of the most common conditions that surgeons come to contact with, whether it is congenital of formed postoperatively, with an incidence between 2 and 13% [9,10].

CASE REPORT

A 65-year-old patient who has been diagnosed with a case of ventral hernia. One of the important information from his previous history is a stroke from 2004. that has left the patient with a right-side hemiparesis and also a maxillary sinus carcinoma that was diagnosed in 2013. He underwent the procedure of maxillectomy with a jaw reconstruction using a miocutaneous flap and Iliac crest flap.

During a routine checkup in 2014. he was diagnosed with weakness and atrophy of his abdominal muscles that was a result of his hemiparesis. The doctors have also found a hernia in the cranial part of his postoperative scar with a diameter of approximately 6 cm for which

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he underwent the proper surgical treatment. When he came for a checkup in 2016., the doctors noticed a 30 cm long postoperative scar which stretched from his right lumbar and inguinal region with a prolapse of abdominal content inside the massive hernia. (Figure 1). No hernia has been found in the cranial part of the newly formed hernia that has been operated 2 years ago. It has been decided to perform the surgery while the patient was under general endotracheal anesthesia. During the procedure, the operators have found a 40 cm long ventral hernia that stretched in the direction of the right upper leg. The ventral hernia was about 15cm in diameter. Medially and cranially it went underneath the musculus obliquus abdominis, and laterally all the way to musculus quadratus lumborum.

Abdominal wall repair with an implementation of mesh was performed in the preperitoneal area, while in the caudal part, the mesh was fixed on the wing of the iliac bone by the use of steel screws. Postoperative recovery has gone according to plan so the patient was released from the hospital while being in good general health and he was given a recommendation of wearing hernia vest. He came for his scheduled appointment a month after the surgery with a seroma in the area of the postoperative scar and it has subsided during a 2 months' period and was eventually punctuated. (Figure 2.)

DISCUSSION

The wing of the iliac bone is a common place from which an autologous bone implant is harvested [11]. In this case report, the ventral hernia has occurred three years post-surgery, however, it can be developed in just days after the surgery. It is presented as a swelling of the stomach, reported pain and it is also possible to see a case of incarceration of the hernia. Operative possibilities are to perform an open surgery or to do the laparoscopic surgery of the abdominal wall. That includes the suturing of the soft tissue, strengthening the soft tissue by using the fascia or by implementing the synthetic mesh. Some of the most common postoperative complications are thromboembolism, another case of hernia, wound infection and even difficulty in breathing because of the heightened diaphragm.

Because of all of this, and also considering the price of using the synthetic mesh, a valid question is should the mesh be used as a prophylactic measure in those procedures that might result in the abdominal wall defect.

A randomized controlled study suggests that in a 2 year period, 28% of those patients who have been subjected medial laparotomy have also developed a ventral hernia as opposed to 0% of those in which mesh was used as a prophylactic measure. There have also not been any other complications reported in those patient with mesh, only a 16 minute longer period needed to close the abdominal wall [12].

It is also important to determine what is crucial in deciding what mesh to use, and that is the type of mesh and its location. The most important characteristic are the type of filament, tension and porosity. Some of the research claim that mesh which have less tension are more superior because of their flexibility and less reported patient discomfort. The mesh with bigger pores are considered to be the first choice because of the lowest chance of a later infection [13].

There are multiple locations in which a mesh can be placed, and each has some benefits and some drawbacks. To put it on the anterior fascia is the surgically easiest method, however there is a chance of infection because a skin flap is necessary. Laparoscopic surgery has made the intraperitoneal placement popular, but it is technically more difficult to perform and it requires dense suturing in order to prevent the movement of the intraabdominal organs between the mesh that has to have anti adhesive properties, and the abdominal wall. In this case, the mesh was placed preperitoneal, and that approach protected the mesh from the intraabominal content and the possible surface complications. According to the meta analysis that was made in the period from 1990. to 2015., this kind of placement is shown to have a lesser rate of recurrence and infection. [14].

CONCLUSION

Postoperative ventral hernia is one of the most common complications that surgeons come to contact with and it is necessary to consider the placement of the mesh as a prophylactic measure. Studies have also shown that the best approach in placing the mesh is preperitoneal because there is a lesser chance of a possible recurrence or infection.

CONFLICT OF INTEREST:

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REFERENCES

1. *Flum DR, Harvath K, Koepsell T. Have outcomes of incisional hernia repair improved with time? – a population-based analysis. Ann Surg. 2003; 237:129–35.*
2. *Wong SY, Kingsnorth AN. Prevention and surgical management of incisional hernias. Int J Surg Invest. 2001; 3:407–14.*
3. *Lamont PM, Ellis H. Incisional hernia in re-opened abdominal incisions: an overlooked risk factor. Br J Surg. 1988. 75:374–376.*
4. *Bucknall TE, Cox PJ, Ellis H. Burst abdomen and incisional hernia: a prospective study of 1129 major laparotomies. Br Med J (Clin Res Ed). 1982. 284:931–933.*
5. *Anthony T, Bergen PC, Kim LT et al. Factors affecting recurrence following incisional herniorrhaphy; discussion. World J Surg. 2000. 101:95–100.*
6. *Mudge M, Hughes LE. Incisional hernia: a 10-year prospective study of incidence and attitudes. Br J Surg 1985; 72:70.*
7. *Kingsnorth A, LeBlanc K. Hernias: inguinal and incisional. Lancet 2003; 362:1561.*
8. *LeBlanc KA, Booth WV. Laparoscopic repair of incisional abdominal hernias using expanded polytetrafluoroethylene: preliminary findings Laparosc Endosc. 1993. 3:39–41.*
9. *Hoer J, Lawong G, Klinge U, Schumpelick V: Factors influencing the development of incisional hernia. A retrospective study of 2983 laparotomy patients over a period of 10 years. Chirurg 2002, 73:474-480.*
10. *Santora TA, Roslyn JJ: Incisional hernia. Surg Clin North Am 1993,73:557-570.*
11. *Fowler BL, Dall BE, Rowe DE. Complications associated with harvesting autogenous iliac bone graft. Am J Orthop (Belle Mead NJ). 1995 Dec;24(12):895–903*
12. *Muysoms FE, Detry et al: Prevention of Incisional Hernias by Prophylactic Mesh-augmented Reinforcement of Midline Laparotomies for Abdominal Aortic Aneurysm Treatment: A Randomized Controlled Trial. Ann Surg. 2016 Apr;263(4):638-45.*
13. *CN Brown,JG Finch: Which mesh for hernia repair? Ann R Coll Surg Engl. 2010 May; 92(4): 272–278.*
14. *Julie L. Holihan et al. Mesh Location in Open Ventral Hernia Repair: A Systematic Review and Network Meta-analysis World J Surg DOI 10.1007/s00268-015-3*

FIGURES

Figure 1. Preoperative findings of 30 cm long scar and ventral hernia.

Figure 2. Postoperative clinical findings have shown no sign of hernia.