Case report

RARE COMPLICATION - DEVELOPMENT OF AN ABDOMINAL WALL PSEUDOCYST AFTER INCISIONAL HERNIA REPAIR WITH MESH: A CASE REPORT

Emzar Diasamidze[1], Elguja Ardia[2], Giorgi Antadze[3], Tamaz Gvenetadze[1]

[1]David Aghmashenebeli University of Georgia, [2]Petre Shotadze Tbilisi Medical Academy, [3]Batumi Shota Rustaveli State University

Contact person: Emzar Diasamidze, dr.diasamidze@mail.ru

DOI: https://doi.org/10.48412/GTBGS.2026.14-15.25-28

Rezume

Introduction: Seromas commonly form after incisional hernia repair, particularly when surgeons use prosthetic materials. While most cases resolve spontaneously, some can be prolonged or recurrent, necessitating repeated intervention.

Case presentation: We present a case of seroma that developed following incisional hernia repair with mesh. Despite conservative treatment involving repeated aspiration and subsequent surgical drainage, the fluid reaccumulated and formed an encapsulated mass, necessitating re-operation several months later. The organised seroma was excised without removing the mesh, and the patient was discharged without complications.

Conclusion: Prolonged and irreversible seroma formation after incisional hernia repair can lead to the development of a chronic encapsulated pseudocyst. Early recognition, careful monitoring, and timely surgical intervention can prevent long-term morbidity without the need to remove the mesh in non-infected cases.

Key words: Incisional hernia; Seroma; Pseudocyst; Mesh repair; Postoperative complications; Surgical management

INTRODUCTION

An incisional hernia is a common complication following abdominal surgery, with an incidence ranging from 10% to 20% depending on the surgical technique used, how well the wound heals, and patient-related factors such as obesity, infection, and other health conditions [1]. Mesh repair, particularly in the sublay (retro-rectus) position, has become the gold standard for hernia repair due to its favourable biomechanical properties and lower recurrence rate than onlay or inlay techniques [2, 3].

However, despite the advantages of mesh repair, postoperative complications can occur. One of the most common of these is seroma formation, which is the accumulation of non-infected fluid in the 'dead space' created by surgical dissection. It has an incidence ranging from 5% to 25% [4]. Seroma formation can delay healing, cause discomfort, and increase the risk of infection. In rare cases, it can lead to the development of chronic encapsulated seromas (pseudocysts), which are often refractory to conservative management.

The pathophysiology of seroma formation involves mechanical and biological factors. Surgical dissection and tissue devascularisation create potential sites for fluid accumulation, and a foreign body reaction to the mesh, as well as local inflammatory responses, can increase fluid exudation. While most seromas resolve spontaneously or following simple aspiration, persistent or organised seromas often necessitate surgical intervention [6].

We present the case of a patient who developed a recurrent postoperative seroma following sublay mesh repair of an incisional hernia. The patient underwent multiple interventions, including aspiration, surgical drainage, and, finally, organised excision of the fluid capsule without mesh removal. This report highlights the challenges associated with managing chronic seromas and reviews the existing literature on their prevention and treatment.

CASE PRESENTATION

A 75-year-old female patient was admitted to our surgical department with a symptomatic incisional hernia at the site of a previous midline laparotomy incision. The hernial defect measured approximately 12 x 5 cm. Preoperative examinations revealed no pathology that would affect the outcome, and there were no signs of infection or intestinal obstruction.

The patient underwent elective incisional hernia surgery under general anaesthesia. Following adhesiolysis and excision of the hernia sac, the posterior rectus sheath was closed, a polypropylene mesh was placed in the sublay position, and the anterior fascia was closed. A drainage tube was left in the wound and removed after 3 days, when the amount of fluid released decreased to 20 ml/day. The early postoperative period was uneventful, and the patient was discharged on the fourth postoperative day.

Approximately one week after discharge, the patient developed progressive swelling and mild discomfort at the surgical site. An ultrasound examination revealed fluid accumulation consistent with a postoperative seroma. Conservative treatment was initiated, including local puncture and aspiration under sterile conditions. However, despite several aspiration attempts, the seroma reaccumulated. As conservative measures proved ineffective, the patient was readmitted and underwent surgical drainage under gen-

eral anaesthesia. Around 3,000 ml of clear serous fluid was evacuated, and a drain was inserted. Bacteriological examination of the fluid revealed no microflora, and cytological examination revealed no atypical cells. The patient was discharged in a stable condition.

During follow-up a few weeks later, recurrent oedema developed at the same site. Imaging confirmed persistent fluid accumulation without signs of infection (figure 1).

Over time, the seroma became encapsulated and organised, forming a pseudocyst-like cavity (figure 2). Following several months of observation and the failure of conservative measures, a third surgical procedure was performed.

At the time of surgery, a fibrous capsule containing serous fluid was present ventrally to the mesh. The capsule was carefully excised without removing the mesh, as a fibrous layer was observed between the prosthetic material and the posterior wall of the cyst (figure 3, 4, 5). There was no evidence of infection or pathological inclusions. The patient was discharged home after surgery without complications, and no recurrence of seroma or hernia was noted after three months of follow-up.

DISCUSSION

Seroma formation is one of the most common complications following mesh hernia repair. This is primarily due to tissue trauma, lymphatic damage, and the creation of 'dead space' during dissection [7]. Although the sublay technique is associated with a lower rate of wound complications than the onlay technique, seromas can still occur due to the need for extensive retrorectal dissection.

PATHOPHYSIOLOGY

A seroma is an accumulation of sterile serous fluid resulting from inflammatory exudation and lymphatic leakage. If this accumulation is not resolved over time, it can stimulate the formation of fibrous tissue around it, leading to encapsulation and the formation of a chronic seroma or pseudocyst [9]. The capsule is composed of fibrous connective tissue lined with inflammatory cells and can persist despite repeated aspiration.

MANAGEMENT

The management of postoperative seroma depends on its size, symptoms, and persistence.

1. Small, asymptomatic seromas may be observed as many resolve spontaneously within weeks.
2. Symptomatic or large seromas are treated with needle aspiration or percutaneous drainage.
3. If these measures fail, sclerotherapy using agents such as doxycycline or ethanol may be employed, although studies have shown mixed results [10].

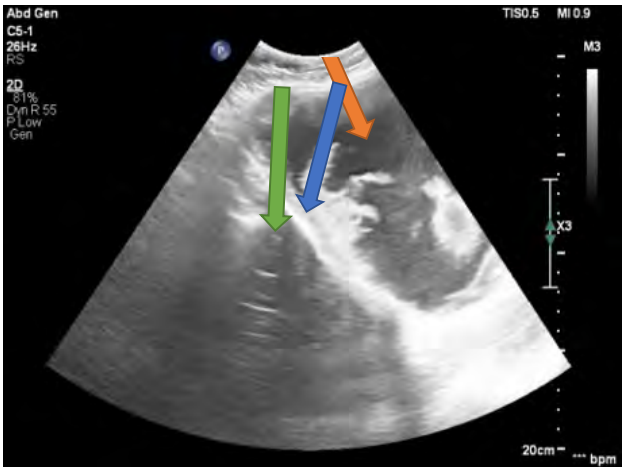

Figure 3. Cyst, blue arrow indicates the mesh, orange arrow indicates the cyst cavity, green arrow indicates the abdominal cavity

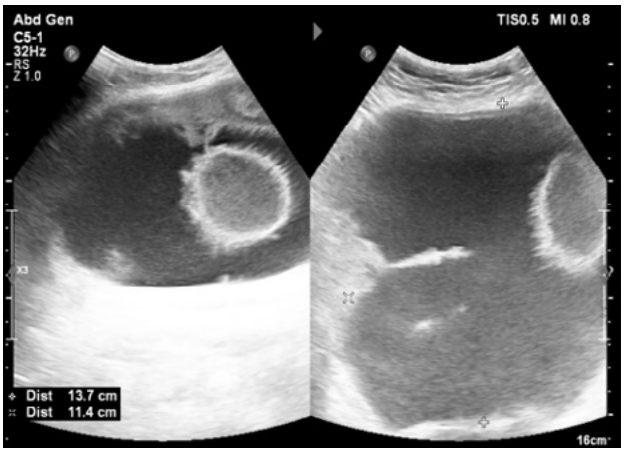

Figure 2. Ultrasound data of the cyst

Figure 3. Mass on the anterior abdominal wall

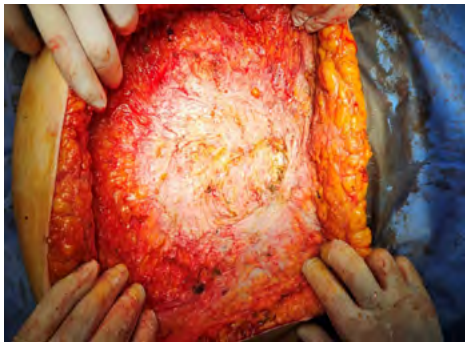

Figure 4. Anterior abdominal wall after cyst excision

Figure 5. Macroscopic image of excised cyst

4. Persistent or organised seromas require surgical excision of the capsule.

In our patient, despite repeated aspiration and one surgical drainage procedure, the seroma reaccumulated and organised over several months. A successful outcome was ultimately achieved through the complete excision of the fibrous capsule while preserving the mesh, as it was not infected. Mesh removal is indicated only if infection or mesh migration is suspected [11].

PREVENTION

Preventive strategies include achieving haemostasis, minimizing tissue trauma, and ensuring adequate drainage. Using closed suction drains in large dissection sites may reduce the incidence of seromas, although their routine use remains controversial [12]. Some studies have suggested the use of fibrin glue.

CONCLUSION

The recurrence of seroma or the formation of a chronic cyst after incisional hernia repair is a rare but challenging complication. While most seromas respond to conservative treatment, those that are persistent or encapsulated often require surgical intervention. If there is no infection, the mesh can be retained. During the intraoperative period, surgeons should focus on preventive measures and provide close postoperative surveillance to ensure early detection and appropriate management.

References:

1. *Luijendijk, R. W., Hop, W. C., van den Tol, M. P., de Lange, D. C., Braaksma, M. M., IJzermans, J. N., Boelhouwer, R. U., de Vries, B. C., Salu, M. K., Wereldsma, J. C., & Bruijninckx, C. M. (2000). A comparison of suture repair with mesh repair for incisional hernia. New England Journal of Medicine, 343(6), 392–398. https://doi.org/10.1056/NEJM200008103430603*
2. *Maskal, S. M., Miller, B. T., Ellis, R. C., Beffa, L. R., Prabhu, A. S., Rosen, M. J., Krpata, D. M., Huang, L. C., & Petro, C. C. (2025). A modern comparison of suture repair versus mesh repair for incisional hernia: A study protocol for a randomized controlled trial. Trials, 26(1), 450.*
3. *Sahoo, R., Gupta, K. P., Naik, N. K., Voona, A., & Ganesh, A. S. (2025). A comparison study between retro-rectus and onlay mesh repair outcomes for ventral hernia in a tertiary care center. International Journal of Abdominal Wall and Hernia Surgery, 8(2), 82–89.*
4. *Albino, F. P., et al. (2013). Seroma prevention strategies after abdominoplasty: A systematic review and meta-analysis. Aesthetic Surgery Journal, 33(10), 1316–1325. https://doi.org/10.1177/1090820X13514503*
5. *Kafeel, U., Imtiaz, K., Butt, M. S., Saad, M., Yaseen, R., & Sufyan, M. (2025). Comparative study of abdominal wall closure method–Hughes technique versus conventional mass closure in reducing incisional hernia. Indus Journal of Bioscience Research, 3(1), 739–744.*
6. *Hawn, M. T., et al. (2011). Postoperative complications after incisional hernia repair: An analysis of 10,000 cases from the NSQIP database. Journal of the American College of Surgeons, 212(1), 70–79. https://doi.org/10.1016/j.jamcollsurg.2010.09.012*
7. *Hillejan, K. (2023). Seroma after ventral hernia repair: Risk factors, diagnostic, prevention and management (Master's thesis, Lithuanian University of Health Sciences).*
8. *K ckerling, F., Alam, N. N., Narang, S. K., Daniels, I. R., & Smart, N. J. (2015). Biological meshes for inguinal hernia repair: Review of the literature. Frontiers in Surgery, 2, 48. https://doi.org/10.3389/fsurg.2015.00048*
9. *Loo, W. T., et al. (2016). Chronic encapsulated seroma (pseudocyst) following mesh repair of incisional hernia: A rare complication. Hernia, 20(2), 319–323. https://doi.org/10.1007/s10029-015-1441-8*
10. *Cunningham, H. B., Weis, J. J., Taveras, L. R., & Huerta, S. (2019). Mesh migration following abdominal hernia repair: A comprehensive review. Hernia, 23(2), 235–243. https://doi.org/10.1007/s10029-018-1834-9*
11. *Di Vita, G., et al. (2013). Management of chronic seroma after prosthetic repair of incisional hernia. Annali Italiani di Chirurgia, 84(4), 447–450.*
12. *Brown, R. H., et al. (2017). The role of drains in open ventral hernia repair with mesh: A prospective randomized controlled trial. Hernia, 21(4), 641–649. https://doi.org/10.1007/s10029-017-1593-0*
13. *Kral, J. G. (2018). Quilting sutures in abdominoplasty reduce seroma formation. Plastic and Reconstructive Surgery, 142(3), 774–782. https://doi.org/10.1097/PRS.0000000000004631*

იშვიათი გართულება - მუცლის კედლის ფსევდოკისტის განვითარება ინციზიური თიაქრის ბადით პლასტიკისშემდეგ: შემთხვევის მიმოხილვა

ემზარ დიასამიძე[1], ელგუჯა არდია[2], გიორგი ანთაძე[3], თამაზ გვენეტაძე[1]

[1]საქართველოს დავით აღმაშენებლის სახელობის უნივერსიტეტი; [2]პეტრე შოთაძის სახელობის თბილისის სამედიცინო აკადემია; [3]ბათუმის შოთა რუსთაველის სახელმწიფო უნივერსიტეტი

პასუხისმგებელი პირი: ემზარ დიასამიძე, dr.diasamidze@mail.ru

DOI: https://doi.org/10.48412/GTBGS.2026.14-15.25-28

რეზიუმე

შესავალი: ინციზიური თიაქრების აღდგენის შემდეგ ხშირად ვითარდება სერომები, განსაკუთრებით მაშინ, თუ გამოყენებულია საპროთეზო მასალები. შემთხვევათა უმრავლესობაში სერომა სპონტანურად ქრება, თუმცა ზოგჯერ შეიძლება პროცესი გახანგრძლივდეს ან განვითარდეს რეციდივი, რაც განმეორებით ჩარევას მოითხოვს.

შემთხვევის პრეზენტაცია: წარმოგიდგენთ სერომის შემთხვევას, რომელიც განვითარდა ინციზიური თიაქრის ბადით აღდგენის შემდეგ. განმეორებითი ასპირაციის, შემდგომი ქირურგიული დრენირებითა და კონსერვატული თერაპიის მიუხედავად, სითხე ხელახლა დაგროვდა და ჩამოყალიბდა ინკაფსულირებული მასა, რაც რამდენიმე თვის შემდეგ ახალი ოპერაციის ჩვენება გახდა. ორგანიზებული სერომა ამოიკვეთა ბადის მოცილების გარეშე. პაციენტი გაეწერა დამაკმაყოფილებელ მდგომარეობაში.

დასკვნა: ინციზიური თიაქრის აღდგენის შემდეგ სერომის ხანგრძლივმა და შეუქცევადმა ფორმირებამ შეიძლება გამოიწვიოს ქრონიკული ინკაფსულირებული ფსევდოკისტის განვითარება. ადრეული ამოცნობა, ფრთხილი მონიტორინგი და დროული ქირურგიული ჩარევა ავადობის გახანგრძლივებას ბადის მოხსნის საჭიროების გარეშე, არაინფიცირებულ შემთხვევებში.

საკვანძო სიტყვები: ინციზიური თიაქარი; სერომა; ფსევდოცისტა; ბადის რეპარაცია; პოსტოპერაციული გართულებები; ქირურგიული მართვა