



# PSEUDOCYST FORMATION AFTER ABDOMINOPLASTY: A CASE REPORT

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**SUMMARY** – Abdominoplasty is one of the most popular aesthetic body contouring procedures. Seroma formation is the most common early complication after abdominoplasty. Usually, it resolves with punctions and seroma evacuation. Chronic seroma and pseudocyst formation is a rare complication and it demands surgical intervention. Based on our experience from the described case, the pseudocyst needs to be radically extirpated and a combination of quilting sutures, fibrin glue, three weeks of suction drainage, and compressive garments should be used to prevent recurrence.

**Key words:** *Abdominoplasty; Pseudocyst; Chronic seroma*

## Introduction

Abdominoplasty is one of the most commonly performed aesthetic procedures for body contouring by removing excess skin and subcutaneous fat tissue and restoring the integrity of the abdominal wall musculature. According to the International Society of Aesthetic Plastic Surgery, abdominoplasty was the fourth most popular/performed plastic-reconstructive surgery in the world in 2018<sup>1</sup>. According to the literature, abdominoplasty is the aesthetic procedure with the highest incidence of postoperative complications, described in up to 51.8% of cases<sup>2</sup>. Abdominoplasty complications are divided by most authors into major and minor ones. Major complications are all those that demand surgical intervention, aspiration, parenteral antimicrobial treatment, and/or hospitalization. Those complications are present in 18.1% of cases and include hematoma, sero-

ma, abscess, cellulitis, and deep venous thrombosis or pulmonary embolism<sup>3,4</sup>. All other complications are considered minor<sup>3</sup>. The most common local complication associated with abdominoplasty is seroma formation, with the incidence rates ranging from 1% to 57%. Therefore, an average incidence of 10% is widely accepted by most authors<sup>5</sup>. The risk factors found to increase the incidence of postoperative complications are obesity and male sex<sup>3,4,6</sup>. Seroma usually presents as exudative protein- and neutrophil-rich fluid under the abdominal flap, mostly occurring 2 to 3 weeks postoperatively<sup>7</sup>. Seroma formation is the result of lymphoid vessel dissection, dead space formation following flap removal, friction, and shearing forces between the flap and aponeurosis accompanied by the release of inflammatory mediators<sup>8</sup>. A chronic, untreated, unspirated seroma can lead to fibrous wall formation, usually described as pseudocyst or pseudobursa<sup>7</sup>.

## Case Report

A 30-year-old male presented with a swelling in the lower part of the abdominal wall after abdomino-

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procedure was indicated. Surgery was performed under general anesthesia. An incision was made by excising the previous abdominoplasty scar. The fibrous pseudocyst capsule was identified under the subcutaneous fat tissue (Fig. 3) and completely excised (Fig. 4).

The weight of the excised fibrous capsule was 700 grams and it contained 1200 mL of serous fluid. The extracted fluid was sterile on microbiological analysis, while the histopathologic finding confirmed the diagnosis of pseudocyst. After the pseudocyst was excised, 20 tension-free (quilting) sutures were performed attaching the abdominal flap to the aponeurosis<sup>10</sup>. Between the quilting sutures we used fibrin glue. Two closed suction drains were left for 3 weeks<sup>11</sup>. In that period, there were 250 mL and 200 mL of seroma in the left and right drain, respectively. Compressive garment was used for 6 weeks postoperatively. Three months postoperatively, ultrasound did not show any fluid collection on the supra-aponeurotic layer.

## Discussion

Since abdominoplasty is one of the most frequently performed invasive aesthetic procedures in plastic and reconstructive surgery, we should always bear in mind the high potential of complications. These complications do not only affect patient health but they also extend hospital stay and increase overall expenses. Among the complications described, the most frequent is seroma. According to recent publications, seroma can be prevented using active drainage, quilting sutures, and fibrin glue. Although abdominoplasty always results in some exudate, in most cases the amount is small and usually reabsorbs spontaneously<sup>8,9</sup>. Mohammad *et al.* showed ultrasound diagnosed fluid collection in 51.8% of patients following abdominoplasty, but without clinical significance in 35.7% of them<sup>12</sup>. A potential problem is the lack of guidelines regarding the amount of fluid that should be aspirated to avoid seroma formation and acute postoperative complications such as wound dehiscence, skin necrosis, or infection development<sup>11</sup>. There is only one research regarding the previously mentioned problem, which concluded that the amount of exudate greater than 20 mL demands aspiration due to the risk of chronic seroma, pseudocyst or pseudobursa formation<sup>8</sup>. Abdominoplasty is a procedure often chosen by patients after significant weight loss in order to remove excess skin

and fat tissue, as well as to firm the abdominal wall muscles<sup>13</sup>. Our patient had increased BMI and obesity, which made him more prone to development of seroma. The amount of fat tissue removed during abdominoplasty is related to the risk of seroma development<sup>13</sup>. According to the profile of patients undergoing abdominoplasty, the procedure is often combined with other plastic reconstructive surgical procedures such as liposuction. The impact of these combined surgical procedures on the development of postoperative complications is not yet known<sup>13</sup>.

## Conclusion

Pseudocyst formation after abdominoplasty is a rare complication which demands surgical excision of the pseudocyst. This can affect patient health and aesthetic result of the previous operation, also causing extended hospital stay and increased treatment cost. In order to prevent seroma formation in our patient, we followed recently published recommendations. Therefore, we used the combination of quilting sutures, fibrin glue, active drainage over three weeks, and elastic corset for six weeks after the surgery. During the follow-up period of 6 months, there was no relapse of the pseudocyst.

Severely obese patients with high BMI demand special precautions during abdominoplasty to avoid the formation of dead space where seroma may collect, between the abdominal muscle wall and lipodermal layer. In order to prevent pseudocyst formation, we recommend the combination of quilting sutures and fibrin glue use during the procedure, and extended close suction drainage and prolonged use of elastic corset after the operation.

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## Sažetak

## PSEUDOCISTA NAKON ABDOMINOPLASTIKE: PRIKAZ SLUČAJA

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Abdominoplastika je jedan od najpopularnijih zahvata za oblikovanje tijela, a stvaranje seroma je najčešća rana komplikacija tog zahvata. Obično se uspješno rješava punkcijama i evakuacijom seroma. Kronični serom može dovesti do stvaranja pseudociste ili pseudoburze, rijetke komplikacije koja zahtijeva kirurško liječenje. Prema našem iskustvu i novijoj literaturi radikalna ekstirpacija pseudociste je nužna kako bi se spriječilo ponovno stvaranje seroma, uz dodatnu uporabu sidrenih šavi, fibrinskog ljepila, sukcijske drenaže te nošenja elastičnog steznika.

Ključne riječi: *Abdominoplastika; Pseudocista; Serom*