



Breast augmentation with silicone implants performed without drainage – retrospective analysis of 726 cases

Uvećanje dojki silikonskim implantima bez drenaže – retrospektivna analiza 726 pacijentkinja

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Abstract

Background/Aim. Breast augmentation has been one of the most popular aesthetic procedures. Early complications, like infection, seroma, hematoma and capsular contracture like ones of the most frequent long term complications, might be related to wound drainage. The aim of the study was to investigate the rate of the complications of breast augmentation procedure performed without drainage. **Methods.** Retrospective analysis of all patients who had underwent breast augmentation in the period of 2003–2013 was performed. From the medical history of the patients, data related to their demographic characteristics, surgical technique and the rate of complications were collected. Wound drainage had not been used in any of the patients. The patients were followed at the discharge, after 7 days, three months and yearly thereafter. Wound seroma, wound hemathoma, wound infection and capsular contracture were followed. **Results.** There were 726 patients with the average age of 28.5 (22–48) years. Breast augmentation using silicone implants was performed with inframammary approach using subglandular and submuscular technique. The average implant size was 339 (200–520) cc. Subglandular augmentation had 545 (75%) of the patients while 181 (25%) received an implant in submuscular plane: completely submuscularly in 95/726 (13%) and by dual plane technique in 86/726 (12%) of the patients. In early postoperative period, there were no infection, five (0.7%) seromas and eight (1.1%) hematoma (five of them required surgical evacuation). There was no statistically significant difference between the two surgical techniques in terms of complication rate. During follow-up, there were three (0.4%) capsular contractures. **Conclusion.** The incidence of complications in our group of patients after breast augmentation is low even though no drainage was used. Still, further randomized trials are needed to prove the role of drainage in prevention of complications after breast augmentation.

Key words:

mammoplasty; breast implants; drainage;
postoperative complications.

Apstrakt

Uvod/Cilj. Uvećanje dojki jedna je od najčešće izvođenih operacija u estetskoj hirurgiji. Rane komplikacije kao što su infekcija, serom, hematoma i kontraktura kapsule, kao i neke kasne komplikacije mogu biti posledice drenaže rane. Cilj ove studije bio je da ispita učestalost komplikacija nakon operacije uvećanja dojki izvedene bez drenaže rane. **Metode.** Učinjena je retrospektivna analiza svih bolesnica podvrgnutih uvećanju dojki u periodu 2003–2013. Iz medicinske dokumentacije bolesnica dobijeni su podaci o demografskim karakteristikama, hirurškoj tehnici i broju komplikacija. Drenaža rane nije rađena u ovoj grupi bolesnica koje su praćene na otpustu, nakon 7 dana, tri meseca i godinu dana posle operacije. Praćena je učestalost seroma rane, hematoma, infekcije i kapsularne kontrakture. **Rezultati.** Među 726 bolesnica prosečne starosti 28,5 (22–48) godina, uvećanje dojki je učinjeno silikonskim implantima kroz inframamarni pristup koristeći submuskularnu i subglandularnu tehniku. Srednja vrednost implanta iznosila je 339 (200–520) cc. Subglandularna tehnika je primenjena kod 545 (75%), dok je kod 181 (25%) bolesnice implant ugrađen u submuskularni sloj: kompletno ispod mišića kod 95/726 (13%) odnosno „dual plane“ tehnikom kod 86/726 (12%) bolesnica. U ranom postoperativnom periodu nije bilo infekcije, zabeleženo je pet (0,7%) seroma i 8 (1,1%) hematoma, od kojih je 5 zahtevalo hiruršku reviziju. Nije bilo statistički značajne razlike u učestalosti komplikacija između navedenih tehnika. Tokom perioda praćenja zabeležene su tri (0,4%) kapsularne kontrakture. **Zaključak.** Učestalost komplikacija u ovoj grupi bolesnica nakon operacija uvećanja dojki bez korišćenja drenaže je mala. Buduće randomizirane studije su potrebne da potvrde uticaj drenaže rane na učestalost ranih i kasnih komplikacija.

Ključne reči:

mamoplastika; dojka, implantati; drenaža;
postoperativne komplikacije.

Introduction

The first successful breast augmentation was done in 1895 by Vincent Czerny, who transplanted a lipoma from the trunk to the breast in a patient deformed by a partial mastectomy¹. The idea of breast augmentation was born. During 1950s and 1960s, a large number of different solid and semisolid alloplastic materials, like polyurethane, polytetrafluoroethylene (Teflon), expanded polyvinyl alcohol formaldehyde (Ivalon sponge), were injected into the breast parenchyma for the same purpose.

After the patients developed local tissue reaction, the use of these materials was discontinued². In 1963, Cronin and Gerow³ developed first modern silicone implant, using silicone gel as the filling material contained within a thin and smooth silicone elastomer shell. Since that time, breast augmentation has been one of the most popular aesthetic procedures. According to the latest International Society of Aesthetic Plastic Surgery (ISAPS) Global Survey, it makes 17% of all cosmetic procedures. There are several different approaches for breast augmentation. However, complications (implant related) of all these techniques are mainly common and they can be divided into early (within days or weeks of implantation) and those that typically occur "late" (months, years, or even decades later). Early complications, like infection, seroma, hematoma and capsular contracture, like some of the most frequent long-term complications, might be related to wound drainage⁴⁻⁶. According to some publications, these complications can be prevented by using wound drains⁷. Other authors claim that with the appropriate surgical technique, there is no need for drains because the use of drains is associated with a fivefold increased risk of infection⁸. Finally, in the latest Cochrane review from March 2013, no benefit from drainage in breast infections reduction was proved, but still, there was insufficient data for conclusion related to breast augmentation⁹.

The aim of the study was to investigate the rate of complications in breast augmentations performed without drainage.

Methods

This is a retrospective analysis of 726 female patients who underwent cosmetic breast augmentation by a single surgical team, between 2003 and June 2013.

Demographic characteristics (age, body mass and height), surgical technique and complications (hematoma, infection, seroma and capsular contracture) data were taken from patients medical history charts. The augmentation surgery was carried out under general anesthesia with an overnight regimen. Patients were discharged home with a five days prescription of oral antibiotics and analgesics. Follow-up was performed at discharge, seven days and three months after the operation and yearly thereafter.

Surgical technique

Subglandular, complete submuscular and dual plane implant insertions were performed. All of them were done

with 5 cm long inframammary incision. A pocket was created *via* electrocautery, scissors and finger dissection. In the dual plane technique, dissection in the retromammary plane was done approximately to the inferior border of the areola (type II) and to the superior border of the areola (type III). We stopped muscle division medially where the inframammary fold meets the sternum and medially, along the sternum, only the isolated, white, tendinous origins that lie laterally to the main body of the pectoralis were divided¹⁰. After hemostasis control, the implant pocket was irrigated with saline and on antibiotic. Silicon filled, textured, Cohesive I, round and anatomical implants were used. Both sides of the wound, were closed in three layers. All the augmentations were done without wound drainage. Perioperatively, all the patients received intravenous antibiotic prophylaxis. Immediately after the operation, when the patient was still at the surgical table, special type of bandaging with plaster (Sensifix[®]) was performed (Figure 1).



Fig. 1 – Postoperative bandaging.

Data analysis was performed using SPSS Software 11 (SPSS Inc, Chicago, Ill). All data are expressed as mean and standard deviation (SD). *t*-test and χ^2 -test were used for parametric and nonparametric distributed values. *p* value < 0.05 was considered statistically significant.

Results

There were 726 patients of the average age of 28.5 (22–48) years. The average height and body mass were 171.44 (158–178) cm and 58 (46–75) kg, respectively. The average implant size was 339 (200–520) cc. The distribution of different types of implants in patients is presented in Table 1.

Table 1
Distribution of different implants in patients subjected to breast augmentation

Type of implant	Number	Percentage (%)
Mentor	440	61.1
Allergan	246	34.1
Polytech	35	4.8
Total	721	100

Subglandular augmentation had 545 (75%), while 181 (25%) of the patient received an implant in submuscular plane: dual plane technique was used in 86/726 (12%) and complete submuscular technique in 95/726 (13%) of the patients.

In early postoperative period, no infection was recorded. There were five (0.7%) seromas and eight (1.1%) hematoma, while five of them required surgical evacuation (Figure 2).

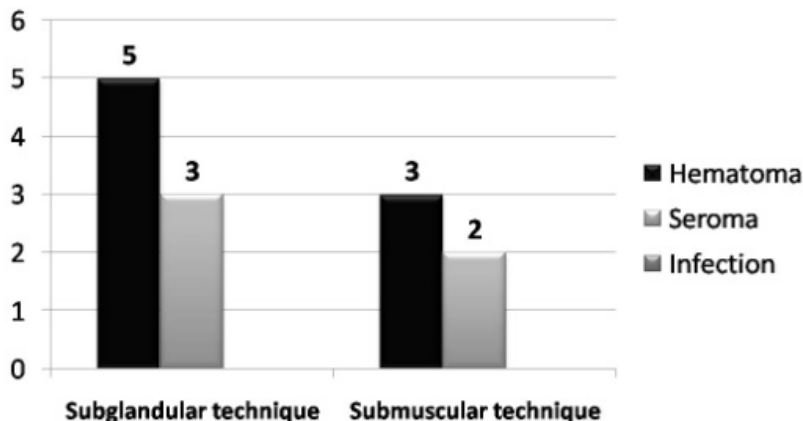


Fig. 2 – Early postoperative complications in patients subjected to breast augmentation procedures without drainage.

Using χ^2 -test, there was no statistically significant difference among surgical techniques used in terms of complication rate.

During follow-up, there were three capsular contractures (0.4%). One capsular contracture was formed eleven months after the operation in a patient with small hematoma in early postoperative period which was treated conservatively. One was formed two years, and the third one three years after the operation.

Discussion

When you ask your colleagues about how many of them are for using wound drainage in cosmetic breast augmentation, and how many are against, you will get different rate of answers. This is probably because there are many reasonable explanations for each of them.

Seroma is a rare postoperative complication and has unclear aetiology. Any cause that can enhance fluid exudation, could play the role in seroma formation. Fluid can lead to the loss of adhesion between implant and tissue with rotation of anatomical implant¹¹ and possible double capsula formation. Wound drainage clears away the fluid, so it can prevent these complications. But it is more likely that, late seroma and double capsula are caused, according to mechanical theory, when the adherence of the capsula to the implant is traumatically separated. The adherence can be seen in aggressively textured implant. The problem does not happen in the polyurethane implants because there was true tis-

sue in growth that could not be separated from the implant¹². We had five seromas, out of which three were submitted to needle aspiration, but none of these patients had formed any kind of capsular contracture.

According to some authors a positive correlation between hematoma and capsular contracture is about 86%¹³, and the average rate of formation is 3–10.3%¹⁴. Hematoma seems not only

to significantly increase the rate of capsular contraction but it also affects the time course, as contraction occurs more rapidly in the presence of hematoma¹³. In our group of eight hematomas, only one patient with hematoma that was not surgically evacuated, developed early capsular contracture. If all of these assumptions are true, what can we do to prevent them? Meticulous hemostasis for shore, but do we need drains? The absence of drainage could force the surgeon to pay more attention to hemostasis. Negative pressure in wound formed *via* drainage can slow coagulation process. The use of drains in breast augmentation is not only unnecessary but even deleterious.

The use of drains is associated with an increased risk of infection¹⁵ and a large body of clinical data showing low capsular contracture rates when a drain is not used^{11, 16–18}. In some findings, the length of time that a drain is left in the wound is in correlations with infection rate. According to some authors, the safe time is 12–18 h⁷. Systemic and especially local bacterial prophylaxis could control contamination⁶. We can totally agree with the latest reference because we used local antibacterial solutions and had no infections.

The disadvantage of our study is that it is retrospective one and without the control group.

Conclusion

The rate of complications in our group of patients submitted to breast augmentations is low, even no drainage at all. Randomized trials are needed to prove the role of drainage in prevention of complications after breast augmentation.

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