

## Preserving Nipple Areolar Complex Sensitivity in Augmentation Mammoplasty

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### Abstract

**Background:** Nipple sensitivity is an important character in the females breast, this sensitivity is important for both female sexual function as well as for lactation. In our study we are addressing the effect of primary breast augmentation surgery, using breast implants in the sub glandular plane through an inframammary incision, on the sensitivity of the nipple area.

**Methods:** Data collection from files of 75 patients regarding the examination of the nipple sensation before and after the surgery. Data include the examination of the nipple sensitivity before surgery and on three occasions after surgery: at one-week post surgery, one-month post surgery and six months follow up.

**Results:** All our surgeries were bilateral breast augmentation on both sides. The sensation in the first-week post surgery was normal in 94.7% (71 out of 75), and the remaining 4 patients had a feeling of persistent numbness and weak sensation in either one or both sides of the breast. At the one-month post-surgery only one patient had persistent weak sensation with the other 98.6% of the patient had normal light touch examination in both breasts. At the 6 months follow up visit all our patient (100%) had normal sensation in both breasts.

**Conclusion:** Primary breast augmentation surgery, using silicon implant in the sub glandular plane through an inframammary incision, is a safe surgery regarding preservation of the nipple-areolar region. In rare cases, nipple-areolar complex numbness and alteration of sensation can happen but usually regained gradually over the period of few months. Careful attention is mandatory by the plastic surgeons to inform their patient about this rare possibility of this significant complication in order to obtain a better-informed consent and to maintain a proper follow up in these cases.

### Background

Breast Augmentation, which is also known as Augmentation Mammoplasty, is one of the common cosmetic surgeries nowadays, it involves an increase in breast size by inserting an implant either under the breast tissue or under the chest muscles. These type of surgeries usually requested by middle age females between the age of 20 and 35. The Augmentation mammoplasty involves different techniques, for e.g. the plane of insertion of the implant can be sub glandular, submuscular or dual plane.

Nipple sensitivity is an important character in the female's breast, this sensitivity is important for both female sexual function as well as for lactation [1]. Therefore there is increasing interest in the research literature regarding the preservation of nipple function and sensitivities during breast surgeries. The sensitivity of the nipple areolar complex is usually from several cutaneous branches of the fourth intercostal nerve, and in some cases by branches from the third or the fifth intercostal nerves [2].

In our study we are addressing the effect of primary breast augmentation surgery, using breast implants in the sub glandular plane through an inframammary incision, on the sensitivity of the nipple area in order to address the possibility of this significant complication for the patient, which will enable us from giving the patient better education about the surgery and obtaining a better surgical consent.

### Methods

We conducted a retrospective study over a period of six years between 2009 and 2014, collecting data from files of 75 patients regarding the examination of the

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nipple sensation before and after the surgery. All our patient had followed the same protocol of surgery, being done by the same operating surgeon using different sizes of silicone breast implants through the inframammary incision.

The sizes of used implants were between 300cc to 600 cc, the average size was 400c

All implants were textured implants and were inserted through infra-mammary incision in subglandular plane.

Our protocol for these surgeries involved the insertion of a drain in each breast that was removed in the following two days post surgery and before discharge. A breast binder was applied on the table after the surgery, followed by the use of a sports bra for a minimum period of six weeks. All our patient were examined for nipple light touch sensation with Frey's monofilament, each breast side, right and left, was examined and documented. Our examination was carried in all patient preoperatively and on three occasions after surgery: at one-week post surgery, one-month post surgery and six months follow up. No drop out was encountered regarding the follow-up or the documentation of the examination.

Our exclusion Criteria included patient with any previous abnormal or asymmetrical nipple sensitivity, any patient with previous cosmetic or reconstructive breast surgery, any patient who underwent the surgery from different skin incision e.g. periareolar, or any patient who underwent the silicon implant insertion in a different plane than the sub glandular.

## Results

Total of 75 patients were recruited to the study, with an average age of 28.6 years and an average BMI of 22.3. The marital status of the patient was single in 84% of the patient. 68 patients out of the 75 (90%) were medically free and not taking any regular medications, the other 10% had one or more of the following illnesses: Hypertension, Hypothyroidism, Gastro-oesophageal Reflux Disease and Asthma.

Different size of silicone breast implant was used, with a range between 150 ccs and 400 ccs with an average of 300 ccs. Both types of implants, low projection profile or high projection profile, were used. All our implants typer were a silicon material. No relationship was noted between the implant size or type and the outcome.

All our surgeries were bilateral breast augmentation on both sides. The sensation in the first-week post surgery was normal in 94.7% (71 out of 75), and the remaining 4 patients had a feeling of persistent numbness and weak sensation in either unilateral or on both breast sides. At the one-month post surgery only one patient had persistent weak sensation with the other 98.6% of the patient had normal light touch examination in both breasts. At the 6 months follow up visit all our patient (100%) had normal sensation in both breasts.

## Discussion

Cosmetic breast surgeries are noticing an increase in the publicity and demand nowadays, Breast Augmentation surgery, which is also known as Augmentation Mammoplasty, is one of these cosmetic surgeries that aim to increase the breast size using an implant. This surgery is dependent on three main variables.

First being the incision location which can be periareolar, inframammary or axillary incision. The second variable is the plane of insertion which can be sub glandular i.e under the breast tissue and above the chest muscles or submuscular or dual plane. The thirds variable for this procedure is the implant itself, regarding the material which can be saline or silicon, or regarding the implant size. These three main variables are chosen based on certain related factors by the patient and the physician judgment [9].

There are only a few studies that calculated the risk of nipple sensation loss after breast augmentation surgery and it has been estimated to be around 2% [8-9], but the risk was calculated using more than one technique. On the other hand our study focus on a specific incision site and specific plane to calculate the exact risk of this technique. In our study we also excluded all the previously operated patient and all the reconstructive cases as in these cases the result of previous trauma or dissection, specially in the unsafe zone of the breast which is the lower lateral area, will result in significant loss of nipple sensation, for example the nipple-sparing mastectomy can result in loss of sensation in up to 64 % of the cases and the other cases usually retain only partial recovery compared to their previous baseline [3-5].

Regarding the relationship between the size of the breast implant and the risk of nipple sensation loss there is some studies suggest that there is a significant relation, with high risk of sensation loss comes with bigger implant sizes, but in a meta-analysis study it showed no exact relationship exist, which was the case in our study [6,10,12].

Incision site can affect the risk of nipple sensation loss, with some studies suggested that the risk is three folds increased in case of periareolar skin incision in comparison to the inframammary incision, and this was supported by our study which focused only on the inframammary incision and showed a significantly reassuring results [10-13].

## Conclusion

Primary breast augmentation surgery, using silicon implant in the sub glandular plane through an inframammary incision, is a safe surgery regarding preservation of the nipple-areolar region. In rare cases, nipple-areolar complex numbness and alteration of sensation can happen but usually regained gradually over the period of few months. Careful attention is mandatory by the plastic surgeon to inform their patient about this rare possibility of this significant complication in order to obtain a better-informed consent and to maintain a proper follow up in these cases.

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