

Jaime Planas M.D., Arturo Carbonell, M.D., and Jordi Planas, M.D.  
Barcelona, Spain

## Abstract

The authors present a new approach to handling the problem of extrusion of mammary implants. The prosthesis is removed and reintroduced in the same operation. Five cases are discussed.

## Key words

Complications – Breast implants

One of the most feared complications of the mammary prosthesis is spontaneous perforation of the skin, leaving the implant exposed. Perforation of the skin over an implant may be caused by several factors such as infection (primary or secondary), hematoma, or seroma. These are usually cases that involve infection and tend to end in extrusion of the implant.

Thin and poorly nourished skin (i.e., scars) is prone to produce clean and noninfected perforations. Most extrusions occur over the scar where the prosthesis was introduced (Fig. 1). Placing the implant under the skin too superficially with no tissue pad for protection is a contributing factor. Most perforations are a result of capsular contraction in which squeezing of the implant produces folds with projecting tips that erode the skin (Fig. 2). These tips are more dangerous when the cover of the prosthesis is made of thick material. In our experience inflatable prostheses have thicker and heavier covers.

According to the basic principles of surgery, an exposed foreign body should be removed as soon as possible to avoid further damage to the skin, since spontaneous closure will never take place with heavily damaged skin. In many cases the perforation remains dry and clean for a long time, even when it is in contact with nonsterile material (underwear) (Fig. 3). Because of capsular contracture the implant exerts pressure on the perforation, thus sealing the borders of the wound and changing the open cavity into a closed one.

## Treatment

### *Preventing the Perforation*

Projecting tips from the implant or transparent scars call for opening the capsule to create more space or, where possible, adding more tissues between the implant and the skin for padding purposes.

Once the skin has already been perforated, the situation can still be saved. If the implant is in the prepectoral plane, the operation is extremely simple: Through an incision in the submammary sulcus and that is apart from the wound a new space is created behind the capsule in the retropectoral plane (Fig. 4A – C). An incision made in the capsule and through the perforation permits the removal of the implant, which then can be moved to a new position. The old cavity closes. The implant is protected by the posterior wall of the capsule and the pectoral muscle, and the perforation is left to close spontaneously (Fig. 4D).

The problem is more complex if the implant was placed in the retropectoral plane. In this case, the posterior aspect of the capsule has adhered to the ribs and intercostal spaces. In one of our cases (Fig. 5) we were able to save, through meticulous undermining, a large enough piece of the posterior

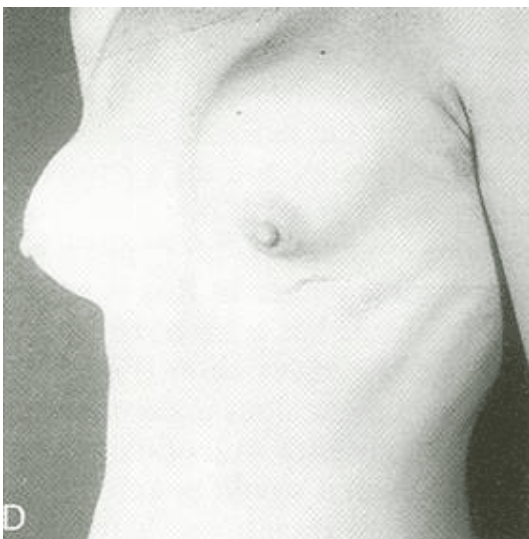
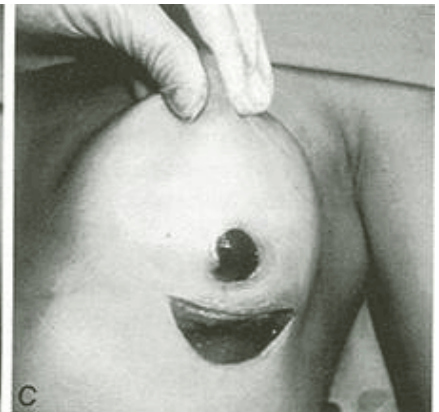
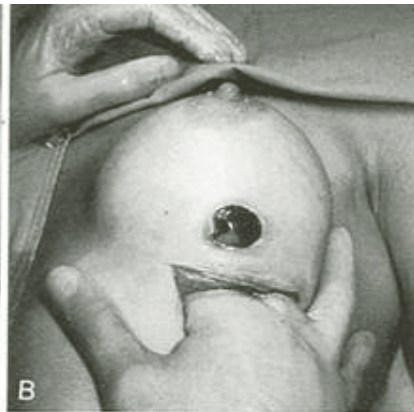
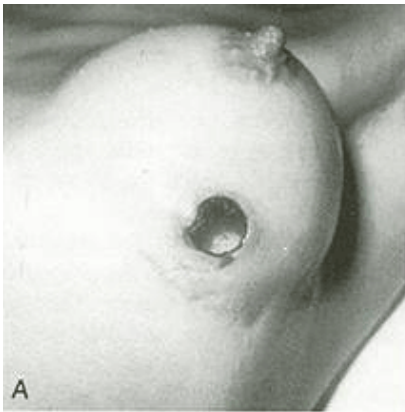




**Fig. 1 .** Extrusion of a mammary prosthesis through the surgical scar.

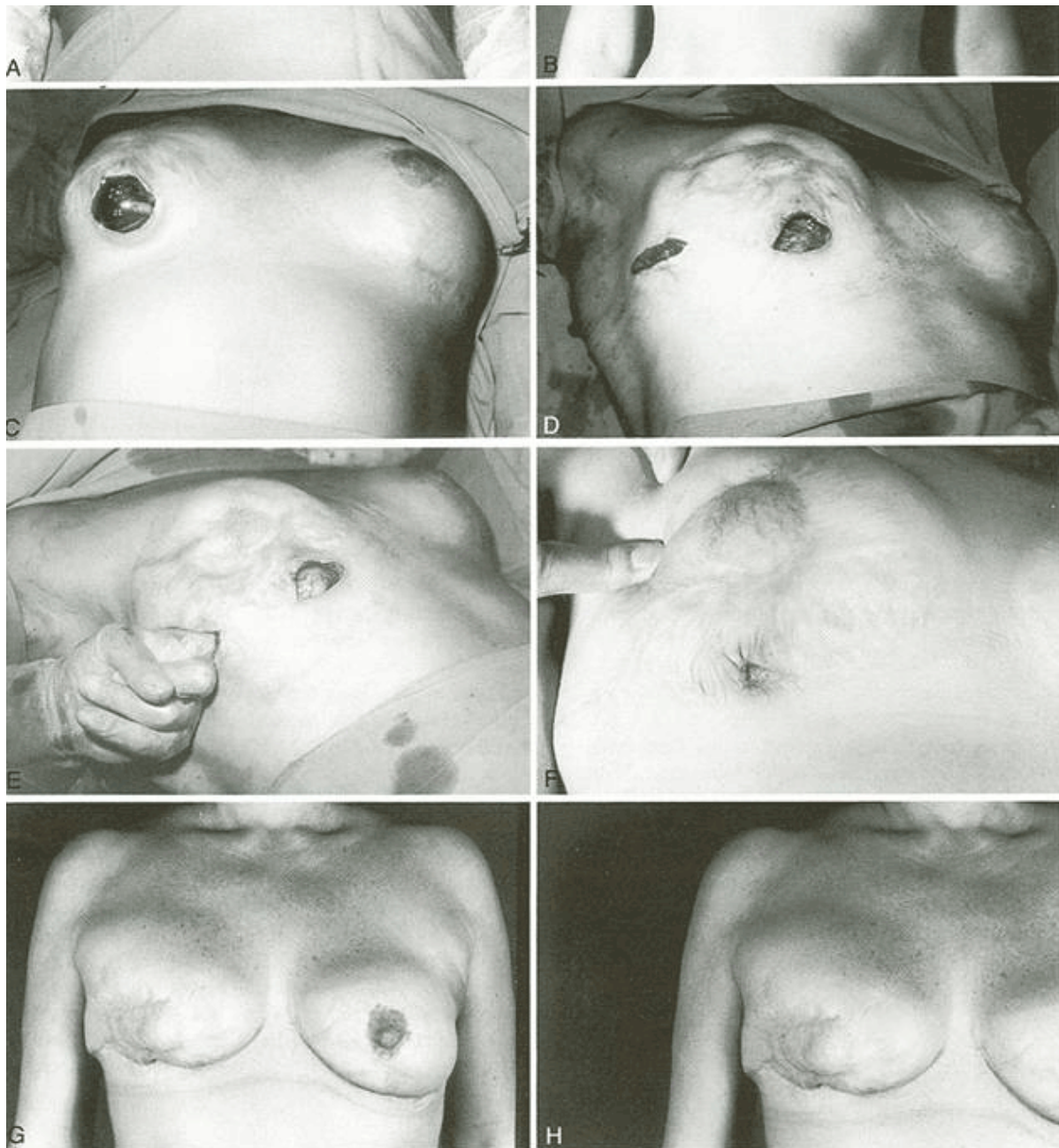
**Fig. 2.** Folded implant resulting from capsular contracture, forming a projecting tip prone to perforate the skin.

**Fig.3.** Dry and clean four-month-old ulcer. The prosthesis was introduced 14 months previously.

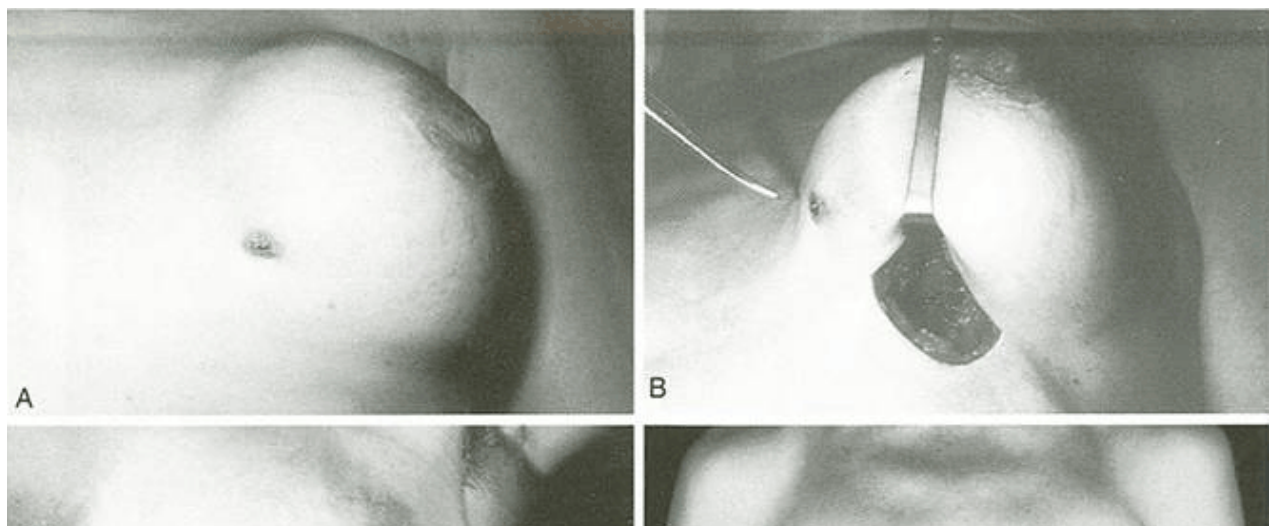


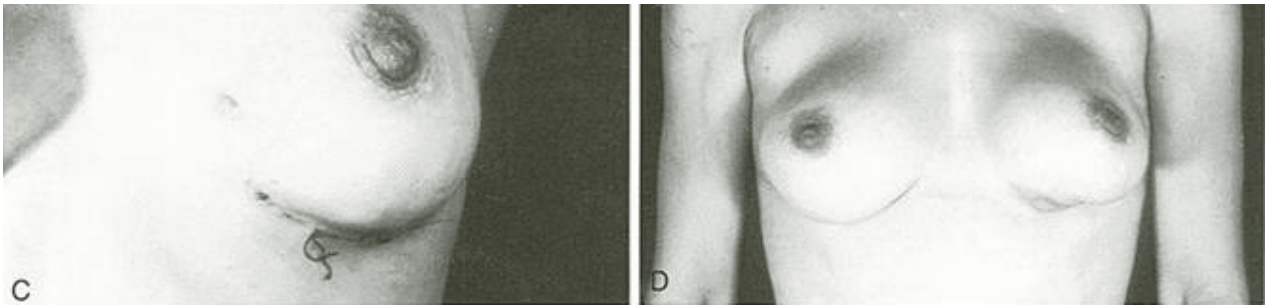
**Fig. 4.** Case 1: (A) Large perforation of the skin over a prepectoral implant, three months after a capsulotomy was performed. (B,C) Through an incision in the submammary sulcus, a new pocket was created in the retropectoral space, and the prosthesis was transferred to the new cavity. The ulcer was left to close on its own. (D) The result 12 years later. The implant has been displaced because of new capsular contracture but no other problems arose.





**Fig. 5.** Case 2. (A) Iatrogenic scarred breasts due to mammary reduction in a 25-year-old patient made by a general surgeon. (B) Result after inclusion of an inflatable prosthesis and mimicking of the areola by a skin graft. (C) Giant perforation with extrusion of the implant. (D,E) Undermining of the posterior wall of the capsule and creation of a new cavity, where the implant was introduced. (F) Three weeks later the ulcer had nearly closed on its own. (G,H) Result 13 years later.





**Fig. 6.** Case 3: (A) Perforation of the skin over an implant; it was maintained over one year with no special protection taken by the patient to avoid contamination. (B) Creation of a new cavity behind the capsule. (C) One week after surgery the fistula covered by the posterior wall of the capsule closed spontaneously. (D) Result after 12 years.

Although it would be safer to use a new prosthesis, we have always introduced the same one after reesterilizing it. Obviously this procedure should not be used in cases where there is infection.

### Patient Summaries

Since 1975 we have treated five such cases. Four have been successful and one failed. In the latter case (case 5) the implant had to be removed two months later because of a new dehiscence. Today such a case would be considered an infected case because there was serious discharge at the time of the operation.

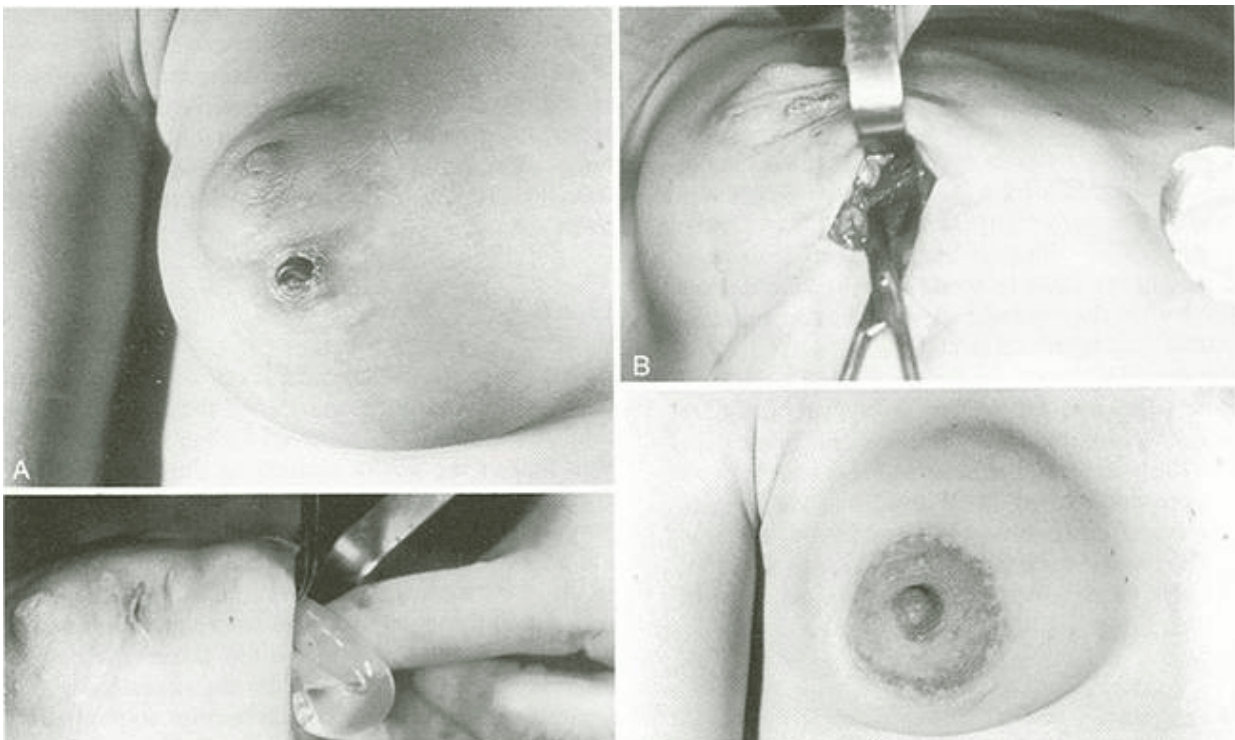
In one of the four successful cases, fibrous capsular contracture recurred, but the implant was maintained in situ when the patient was last seen 12 years later (case 1, Fig. 4).

### Case Reports

#### Case 1

Three years after this patient (21 years old) had mammary prostheses implanted by us in the prepectoral plane she developed bilateral fibrous capsular contracture. This was relieved by capsulotomies, leaving the implants in place. A hematoma was drained from the left breast on the same day. A week later she returned to her home in another city in normal condition.

Three months later she returned showing a big hole in the skin of the left breast through which the implant could be seen (Fig. 4A). Although the hole was large, the ulcer and the implant were clean, without secretions. The following day (October 10, 1975), in order to speed up the procedure, the senior surgeon (J.P.) made the decision to reintroduce the prosthesis in the same stage. An incision was made in the submammary sulcus and through it a new cavity was dug into the retropectoral space (Fig. 4B,C). The implant was removed and transferred to the new cavity. When the patient was last seen, 12 years postoperative, the implant was displaced and hard due to a new capsular contracture, but there was no sign of intolerance (Fig. 4D).





**Fig. 7.** Case 4; (A) Perforation of the skin exposing the implant through the periareolar scar (B) The implant has been removed, and a new cavity is dissected behind the pectoralis muscle. (C) Introducing the prosthesis into the new cavity. The fistula was left to spontaneous cicatrization. (D) Result after five years.

### Case 2

This case was the most dramatic. In September 1974 the 25-year-old patient underwent a reduction mammoplasty by a general surgeon. The procedure ended in extensive necrosis of both breasts (Fig. 5A). The right breast lost the nipple-areola complex and the scar adhered to the deep tissues. Four years later she was admitted to our clinic for bilateral breast reconstruction. A two-stage procedure involving tissue replacement with thoracic flaps was proposed but rejected by the family, horrified by the scars already present in the chest of the patient. No other tissue replacement techniques (free flaps, TRAMP-flap, expanders) were in use at that time.

On June 7, 1978, the patient was operated on by us. Two inflatable prostheses were implanted, each filled with 150 cc of saline solution. The left one was placed subcutaneously because of local conditions, but the right one could be introduced under the pectoralis major. The postoperative course was uneventful, and the result was fairly good.

One and a half years later the patient insisted on having bigger breasts. On January 30, 1980, the small implants were replaced by inflatable 300-cc prostheses. The right areola was imitated by a round full-thickness skin graft. Again, the postoperative course was uneventful and the result was a great improvement (Fig. 5B). One year later the right breast was red and tender. The symptoms receded by antibiotherapy, but two months later she appeared in our clinic with a big hole in the right breast, with the implant showing through (Fig. 5C). Once again skin replacement with a flap was advised but turned down so we decided to use this new approach and she was operated on that same day.

On April 21, 1981, under general anesthesia, we removed the implant through an incision in the submammary sulcus. Since the prosthesis had been placed in the retropectoral plane, the capsule had adhered to the ribs and intercostal spaces. By meticulous undermining with the finger (Fig. 5D,E) the capsule was elevated to an extent sufficient to cover the orifice. More space was created and the implant was resterilized and deflated by removing 50 cc to avoid tension in the new space. The postoperative course was uneventful. One week later the wound was almost closed (Fig. 5F). The last exam was on September 25, 1994, thirteen years later (Fig. 5G). Although the cosmetic result has lost quality, the implant has remained stable and trouble-free.

### Case 3

Two years before our examination, this 33-year-old patient had a mammary augmentation with prostheses through the periareolar approach. The procedure had been done elsewhere. She explained that a hematoma developed on left side was drained but that after a short period she developed fibrous capsular contracture. Six months later another operation, probably with capsulotomy, was performed on the left breast. After one month a fistula began to drain. Although the drainage stopped after a short time, the fistula was still open ten months later. On October 27, 1982, she came to our clinic with a dry and clean orifice through which the implant could be seen (Fig. 6A). Two months elapsed before she returned for another consultation. The fistula was in the same condition.

We operated on her on December 20, 1982. We used the same approach. An incision in the submammary sulcus allowed us to create a new space behind the capsule (Fig. 6B). The prosthesis was removed through the incision made in the lower border of the capsule into the wound itself and was transferred to the new space. The fistula was left to close spontaneously (Fig. 6C). Twelve years later the patient continues to be in perfect condition (Fig. 6D).

### Case 4

This 25-year-old patient was operated on elsewhere two years before presenting to us. Gel-filled mammary prostheses were implanted in the prepectoral space. A hematoma in the right side had been evacuated after a few days. Three months later the breast was very hard and five months after the operation she came to our clinic. In the periareolar scar there was an ulcer (Fig. 7A), through which the implant could be seen. The ulcer was dry and clean.

On August 9, 1989, the retromuscular plane was dissected through a submammary incision (Fig. 7B) and the prosthesis was removed. After resterilization the same implant was introduced into the new cavity (Fig. 7C). The postoperative course was uneventful. Figure 7D shows the result after five years.

### Case 5

One year ago this 29-year-old patient was operated on for mammary hypoplasia. Gel-filled implants were placed. Four months later a fistula appeared in the submammary scar with some serohematic discharge.

Antibiotherapy was used, closing the fistula spontaneously shortly afterward. Two months later, the fistula discharging again. A new treatment with antibiotics was given but some drainage still existed. She was erroneously submitted to surgery in this condition. The new cavity could not be clearly separated from the draining cavity, and two months later the implant had to be removed.

**Discussion**

According to the basic principles of surgery, a foreign body exposed through an ulcer of the skin should be removed immediately to avoid further damage to the skin and to the cavity containing the foreign body. After the removal of an exposed prosthesis, a long period of rest is required before a new implant can be reinserted. Cicatrization of the wound may take several weeks. Furthermore, the new implant cannot be introduced until the region is soft and any sign of inflammation has subsided. All this often takes a period of three to six months. The treatment necessitates two operations, a long period of discomfort to the patient and concern to the surgeon.

The treatment described in this article has saved time, a second operation, and expenses in four of our five cases. In all cases a preventive treatment with antibiotics was given over two weeks.

**Conclusion**

Because of the benefits of saving time, expenses, and discomfort to the patient, we believe that our procedure to be recommended as a first option when the surgeon is faced with an exposed mammary prosthesis.

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