Congenital or developmental deformities of the chest rarely cause severe functional problems in the manner of larger anomalies of the limbs. Poland syndrome is known as a variety of associated anomalies centered on the trunk and upper limbs. The authors report the case of a 28-year-old female with absence of the pectoralis major muscle and depression of the left anterior thoracic wall (sunken chest). She presented with hypoplasia of the papillary–areolar complex; her upper left limb was normal. Seven years after undergoing placement of a left-side breast prosthesis, she requested replacement of the implant because she was dissatisfied with its shape. Chest radiographs showed a chest deformity and deviation of the mediastinum to the right. After surgically removing the prosthesis, an area of costal reabsorption on the left side was seen at its site, with exposure of the parietal pericardium. The prosthesis was replaced with another of greater volume and the patient was referred to the thoracic surgery service. No cases of regional bone resorption secondary to the presence of a breast prosthesis are reported in the literature. However, it is known that compression results in bone absorption and subsequent bone remodeling. The authors therefore believe that greater attention to this possibility is needed in cases of breast prosthesis replacement among patients with Poland syndrome, by means of specific imaging studies such as computed tomography. (Aesthetic Surg J 2008;28:589–593.)

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Figure 1. Preoperative photo of a 28-year-old female who had undergone breast implantation on the left side 7 years previously shows the asymmetry caused by the sunken chest deformity of Poland syndrome.

Figure 2. Chest radiograph showing left-side costal deformity and deviation of the mediastinum to the right. Note the circular radiopaque image on the left that characterizes the presence of the breast prosthesis.
Figure 3. After removal of the breast prosthesis, the recess can be viewed. At the center, note an area of around 4 cm in diameter relating to bone resorption. AS, Silicone adhesive.

Figure 4. The new prosthesis with a polyurethane surface was implanted and vacuum drainage from the recess was instituted.
an attempt to correct or attenuate the chest deformity. She was seeking treatment to replace the breast prosthesis because, in her words, she “was not satisfied with the shape of the prosthesis.”

Routine preoperative tests were requested, and analysis of a posteroanterior chest radiograph revealed an upper left bone depression, with deviation of the mediastinum to the right (Figure 2). A circular radiopaque image could also be seen in the middle third of the left hemithorax that was compatible with the breast prosthesis. After preanesthesia consultations, she underwent the surgical procedure to exchange the breast prosthesis under low-flow general anesthesia.

An incision was made under the scar in the left-side submammary crease in order to access the recess of the prosthesis. After removal of the prosthesis, the presence of an area of bone–cartilage resorption, approximately 4 cm in diameter in the region of the costochondral joint, was observed (Figure 3).

Partial capsulectomy was performed and a new, round breast prosthesis (235 cc) with a high profile and a polyurethane surface was inserted (Figure 4). Vacuum drainage of the recess of the prosthesis was instituted for a period of 72 hours.

The patient was discharged on the first postoperative day and recovered well. On the thirtieth postoperative day, she was referred to the thoracic surgeon, who requested computed tomography for evaluation and follow-up (Figure 5).

DISCUSSION

Surgical correction of congenital or developmental deformities of the chest may be important for preventing progressive scoliosis, cardiopulmonary exertion restrictions, and adverse psychological development. Surgery during childhood is rare and is reserved for cases of functional impairment.

Poland syndrome in women is generally associated with hypoplasia and breast asymmetry. Generally, it is better to wait for growth and development to be completed before proceeding with correction. Both the chest and the breast deformity can be corrected during the same operation.

The literature does not mention any cases of regional bone resorption secondary to the presence of a breast prosthesis. However, it is known that compression results in bone absorption and subsequent bone remodeling.

During the removal of the prosthesis, the presence of 3 circular devices made of silicone was observed inside the recess. These had been used for attaching the original prosthesis to the chest wall (Figure 3). This led us to believe that the patient had not presented with regional bone resorption before the first surgery, because such devices are normally positioned on rigid surfaces.

Anterior regional bone resorption in the left hemithorax was an important clinical finding. Because it gave rise to the possibility of diminished cardiac protection, it was decided to proceed with replacement of the prosthesis. The patient was then referred to a cardiac surgeon for follow-up and planning of a corrective surgical procedure.

Although there is no mention in the literature of bone resorption resulting from implanting a breast prosthesis in a case of Poland syndrome, we believe that there should be greater attention paid to this possibility in cases of breast prosthesis replacement by means of specific imaging studies, such as computed tomography.
DISCLOSURES

The authors have no disclosures with respect to the contents of this article.

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Accepted for publication December 19, 2007.

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