Mondor Disease: A Case Report and Review of the Literature

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Thrombophlebitis of the thoracoepigastric system of veins is a benign disease and, despite its localized involvement and presentation, the condition is known as Mondor disease (MD). A transverse incision made on the thoracoabdominal wall divides the axially arranged superficial veins at a right angle and the presence of unidirectional valves prevents retrograde blood flow, leading to stasis and thrombus formation. The incidence of MD in oncologic breast cases and aesthetic mammoplasties is reported to be 0.95% and 1.07%, respectively. Siliconeadenitis of axillary nodes, on the other hand, is uncommon and has only been reported occasionally. Extensive MD of the left axilla and inner arm is presented following excision of axillary nodes secondary to siliconeadenitis after cohesive gel silicone breast implant rupture. (Aesthetic Surg J 2009;29:209–212.)

CASE REPORT

A 29-year-old woman presented in April 2004 for breast augmentation surgery. The physical examination revealed asymmetrical breasts with pectus excavatum and hemithorax disjunction in the anteroposterior axis. All asymmetries were recorded and the difficulty of obtaining a perfectly matching result because of multiple underlying factors was explained to the patient. The mammoplasty was performed on May 7, 2004. Cohesive gel Poly Implant Prothèse (PIP) implants (La Seyne sur Mer, France) were used. A larger implant (volume 425 cc) was inserted on the right side and a smaller implant (volume 270 cc) was inserted on the left side. Under general anesthetic, both implants were placed in subglandular plane. The patient was discharged on the following day and had an unremarkable recovery with good overall results (Figure 2, A and B).

Four years later, the patient returned to the department and said that she had begun to feel left axillary swelling two years postoperatively. After some time, she had booked an appointment to see her family physician. Following an initial examination by the physician, she was referred to her oncology breast...
surgeon and had axillary ultrasonic imaging performed on her breast. She was diagnosed as having left implant rupture with fluid in and around the implant, along with siliconadenitis. She was finally referred to the author for further management, including excision/biopsy of the left axillary lymph node.

A physical examination revealed that both breasts were soft and showed no loss of volume. The left breast looked slightly displaced medially, without any palpable capsular contracture. The patient also had a thrombosed vein on the upper left outer quadrant of her left breast. The disease process was explained to the patient and an operative plan was discussed, which included a change of breast implant (with a change of implant pocket) and excision of the axillary lymph nodes. The symptoms of left arm swelling, sensory loss, and the recurrent lymphadenitis were explained as possible complications.

In August 2008, the second surgery was performed; preoperative photographs were taken (Figure 3, A and B). The palpable left axillary nodes were identified and marked. Both implants were damaged—the right implant more than the left implant—and 20 cc of yellowish-white (sterile) pus was found in both pockets (Figure 4). Samples were taken and sent for culture sensitivity. There was a moderate inflammatory response in both pockets. Irrigation with betadine and saline was performed and, after capsulotomies, the subglandular pocket was changed to a muscle-splitting biplane pocket.11 Perouse Plastie (Bornell, France) cohesive gel implants were used. On the left side, a 300-cc implant was inserted and, on the right side, a 440-cc implant was inserted. A left axillary incision was made in the skin crease line and blunt axillary dissection was performed by opening and closing the blades of fine scissors in the direction of the long axis of the limb, to avoid any neurovascular damage. The lymph nodes were excised and sent for histology. After hemostasis, wound closure was performed using 4-0 Vicryl sutures in layers.

On August 29, 2008, the patient returned for a follow-up appointment and had extensive MD of the left axilla and upper inner arm, with dysesthesia of the left upper inner arm. She was unable to abduct her arm more than 45° because of pain and thrombosed veins (Figure 5). Her breast wounds had otherwise healed normally. The patient was given instructions to wear pressure garments, massage her forearm, and elevate it when possible to relieve the symptoms of MD.

On September 19, 2008, another follow-up appointment revealed a reduction in the extent of MD, with softening of the veins. The patient was able to abduct her arm approximately 90° (Figure 6). She noted some swelling of the left forearm caused by disruption in the axillary lymphatic system. She was very pleased with the results of her breast surgery (Figure 3, C and D).

Culture sensitivity of the samples showed no growth of microorganisms in either the early or delayed reports. Histologic examinations of the excised lymph nodes, totalling 6 in number, showed reactive hyperplasia with histiocytosis.

Figure 1. Extensive Mondor disease of the left thoracoabdominal wall secondary to the disruption of blood flow in a vein after augmentation mammoplasty with an inframammary incision.
DISCUSSION

MD usually appears below the inframammary incision two to three weeks after mammoplasty, only to disappear six to eight weeks postsurgery. MD—or thrombophlebitis of the thoracoepigastric system of veins—is a self-limiting and can be benign disease and has been reported from time to time. An incision on the thoracoabdominal wall, usually transverse, results in division of the vertically oriented superficial veins. Retrograde blood flow is prevented because of the presence of unilateral valves in these superficial veins, resulting in blood stasis and leading to thrombus formation. The incidence of MD has been documented as 0.95% in a series of 9675 patients from an oncology breast clinic.

Figure 3. A, C. Pretreatment views of a 29-year-old woman, showing medial displacement of the left implant resulting in some lateralization of the nipple–areolar complex. B, D. Posttreatment views, five weeks after reoperation, showing the results after a change of implants from the subglandular to the muscle-splitting biplane pocket.

Figure 4. Ruptured implant (bottom right) and damaged implant (bottom left) with intraprosthetic pus. Sterile pus that was collected from both breast pockets is shown in the receiver (top).

Figure 5. Mondor disease of the left axilla and inner arm of a 29-year-old woman, photographed five weeks postsurgery. Abduction of the left arm, showing painful thrombosed veins (bowstring sign) secondary to excision of the left axillary lymph node. The incision is well-healed and can be seen on the medial axillary wall.
On the other hand, a retrospective study showed an incidence of 1.07% in 1026 bilateral augmentation mammoplasties (2052 breasts). All of these symptomatic patients reported the presence of a painful, cord-like structure below the inframammary incision, especially when raising the arms. Since October 2006, a prospective recording of the presence of the MD was carried out to establish the true incidence of combined symptomatic and nonsymptomatic MD. A chart review of 504 augmentation mammoplasties performed by the author showed that in 395 patients, the presence or absence of MD was recorded. Out of these 395 patients, two patients had bilateral MD, 15 patients had unilateral thoracic MD, and one patient had MD of the left axilla and upper inner arm. The incidence of combined symptomatic and asymptomatic MD was 4.55%, compared to the reported symptomatic incidence of 1.07% in augmentation mammoplasty.

In this patient, MD of the left axilla and upper inner arm developed three weeks after excision of the left axillary lymph nodes. The dissection was performed through an incision in the skin-crease line. The superficial veins, running at a right angle, were transected during the procedure and the presence of unidirectional valves disallowed retrograde flow, resulting in stasis and leading to phlebothrombosis. The patient did develop some sensory loss, along with a minor degree of lymphedema on the forearm. After a regimen of pressure garments, massage, and arm elevation, the patient’s MD had almost subsided at eight weeks postsurgery (Figure 6), with a concomitant improvement in skin sensation. The lymphedema of her left arm responded to the treatment regimen and the patient was happy with the outcome of the mammoplasty. The histologic findings of all excised lymph nodes showed reactive hyperplasia without the presence of silicone. Axillary silicone lymphadenopathy is frequently seen in the ever-increasing number of breast augmentation mammoplasties performed today. In this author’s opinion, fine-needle aspiration should ideally be combined with ultrasonic imaging to reduce the surgical morbidity associated with axillary node dissection. In this case reactive hyperplasia of axillary lymph nodes, misdiagnosed as siliconeadenitis, resulted in axillary node excision. The procedure resulted in MD with sensory and lymphatic disturbances. Surgical morbidity can be avoided by a more comprehensive preoperative work-up.

CONCLUSIONS

MD is more common than has previously been thought and should be included in informed consent. A comprehensive screening is mandatory for axillary lymph node enlargement to reduce surgical morbidity associated with axillary dissection.

DISCLOSURES

The author has no financial interest in and receives no compensation from manufacturers of products mentioned in this article.

REFERENCES