Pectus excavatum is the most common congenital deformity of the chest. This aesthetic deformity often becomes a psychological issue in early teenage years. Treatment options include a variety of fillers, custom-made implants, and open or minimally-invasive thoracic surgery (with a Ravitch or Nuss procedure, respectively).1

Bio-Alcamid (Polymekon Research, Brindisi, Italy) is an injectable permanent soft tissue filler that has been successfully administered for the correction of contour and soft tissue deformities, especially in patients with facial lipoatrophy, Poland syndrome, and pectus excavatum. The filler is comprised of water (96%) and synthetic polymeric polyalkylimide (4%).2 The product is essentially an injectable endoprosthesis and, because of its molecular and biological characteristics, has been successfully utilized in multicentric trials for the treatment of various aesthetic defects.3

We report an illustrative case of pectus excavatum deformity treated with Bio-Alcamid in which the patient experienced postinjection gel migration. This case highlights the successful treatment of gel migration through liposuction, which has not been recommended by the manufacturer nor reported in the literature.

**SURGICAL TECHNIQUE**

A 19-year-old woman with congenital pectus excavatum presented with marked apparent breast asymmetry, with the left breast more prominent than the right. She complained of difficulty finding properly-fitting clothes and was extremely self-conscious about her deformity. On objective examination, the base of right breast was set back approximately 4 cm more than the base of her left breast, with the base of the right breast facing medially instead of laterally. There was minimal asymmetry of actual breast volume. After a discussion with the patient regarding the options for treatment, she reported being reluctant to undergo thoracic surgery or other open procedures. Therefore, filling the defect with the injectable endoprosthesis Bio-Alcamid was her first-choice treatment. The procedure commenced a few months after her consultation.

Over a two-year period, the patient underwent three injections with Bio-Alcamid to improve chest and breast asymmetry. At the first visit, 130 mL of Bio-Alcamid was injected, followed by 12 mL and 30 mL on subsequent visits. The second and third procedures were considered touch-ups to improve the aesthetic result. Each session was followed by seven days of prophylactic antibiotics. Although...
the initial results were promising, in the posttreatment period she had a number of spontaneous episodes of discomfort and bruising in the central area. A significant amount of material had migrated medially, and the cosmetic result gradually deteriorated to the point where it was unacceptable (Figure 1). The complication continued to worsen, with inframedial migration of a significant amount of material causing significant distress for the patient. In the days before treatment of the migration, there was evidence of early extrusion of the material at the inferior margin.

It was clear that the filler required removal, but it was important to avoid a prominent scar, especially in the medial and central areas of the chest and breast. We therefore approached extrication, with the patient under general anesthesia, via a stab incision in the medial inframammary fold using a percutaneous large-bore liposuction cannula (3.7 mm) with Mercedes tip (Figure 2). With a mechanically-assisted liposuction technique, we were able to remove the majority of the migrated but noninfected Bio-Alcamid. Total extracted volume of serum- and blood-stained product was 600 mL. No obvious pus was seen or subsequently cultured. All macroscopic evidence of the filler material was removed. Of note, residual soft tissue changes resulted in an enduring improvement in the appearance of the chest wall (Figure 3).

**DISCUSSION**

Bio-Alcamid is a permanent injectable filler that has had some reported success for the treatment of contour deformities in patients with pectus excavatum.\(^2\)\(^-\)\(^4\) The product appears to have relatively few short- or long-term complications, per the published literature.\(^5\) Reported complications have included infection, migration (as experienced by our patient), and capsule formation. For all of these complications, only a direct-approach surgical treatment with strict aseptic technique has been described. We would still advocate this traditional approach in the presence of infection; if infection had been present in our patient, open surgery via an inframammary fold incision would have been indicated.

Even in cases where infection was not present, liposuction for the removal of injectable permanent fillers has not been reported. In our experience, this strategy for treating migrated Bio-Alcamid filler was successful, safely achieving a good aesthetic result. For facial Bio-Alcamid injection complications and other similar filler problems, expert opinion suggests that liposuction is not the treatment of choice, because these complications have an inflammatory component. However, we suggest the method described above as a suitable alternative for specific noninfected anatomical sites because it allows the surgeon to minimize
further morbidity to patients who are already compromised as a result of implant complications.

**CONCLUSIONS**

Direct surgical excision of migrated gel fillers can be demanding. It can result in unacceptable scarring, and may not allow complete extraction of the filler material in its altered state. Our case report suggests that liposuction can be a safe and effective alternative for the removal of Bio-Alcamid and possibly other injectables in specific anatomical sites such as the breast.

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**REFERENCES**