



ORIGINAL RESEARCH PAPER

Radiology

IMAGING CHARACTERISTICS IN A CASE OF ALMOND OIL INJECTION IN BILATERAL BREASTS.

KEY WORDS: Breast, augmentation, almond oil, granulomatous changes.

Nirali Patel*	MBBS, Department of Radiology, Dr. D.Y Patil Hospital and Research Centre, Nerul, Navi Mumbai. *Corresponding Author
Neeti Mathur	MBBS, MD, Department of Radiology, Dr. D.Y Patil Hospital and Research Centre, Nerul, Navi Mumbai.
Thahir Vu	MBBS, MD, Department of Radiology, Dr. D.Y Patil Hospital and Research Centre, Nerul, Navi Mumbai.
Madan Manmohan	MBBS, MD, Department of Radiology, Dr. D.Y Patil Hospital and Research Centre, Nerul, Navi Mumbai.

ABSTRACT The breast is an aesthetically important organ as it is physiologically. Few surgical procedures have a history as fascinating and as terrifying as breast augmentation. Physicians and women all over the world have used various materials and practiced different methods for breast augmentation since time immemorial. A case report is presented on a woman who self injected her breasts with almond oil for the purpose of augmentation which lead to the formation of chronic granulomatous changes in the breast tissue. We did not find a case in literature where almond oil had been used for breast augmentation.

INTRODUCTION:

The breast is an aesthetically and physiologically important organ for women. Since the 1800s physicians and women have practiced various methods for breast aesthetics and augmentation. There is an increasing interest in the general public for therapeutic systems that either are, or contain, natural products. There is a common misconception amongst people that natural oils such as almond oil, coconut oil, olive oil, clove oil, fenugreek oil, soybean oil and many others can be used to augment the size of breasts. It is said that massaging the breasts with these oils help to increase their size. However, there is no documented scientific information regarding the subcutaneous injection of these oils. A patient presented to our department who injected almond oil in her breasts for augmentation, which lead to the formation of chronic granulomatous changes in the breast tissue.

MATERIALS AND METHODS:

Ultrasound of the patient was performed using Mindray DC-7 USG machine. A linear probe with centre frequency of 5 MHz was used for performing ultrasound of the breast.

Mammography was performed using Navigator Platinum machine (IVES helathcare pvt ltd) in Craniocaudal and Medio-lateral oblique views.

MRI was performed using a 1.5 Tesla GE machine and CT cuts were taken using a 128 multi-slice machine.

CASE REPORT:

A 32 year old female patient presented to our ultrasound department with stony hard breasts, redness and slight induration since four months. Interestingly there was no pain associated with it.

Physiologically there is an increase in size of breasts during pregnancy, however in our patient's case there was no such increase in the size of her breasts even after three deliveries.

The patient gave a history of topically using almond oil for several months to massage her breasts, with no visible change in size. She then proceeded to inject the oil in both her breasts for the purpose of augmentation.

Physical examination revealed stony hard bilateral breasts with mild discoloration and induration at the site of injection.

On breast Ultrasonography, an ill defined heterogeneously hyperechoic area was noted in the subcutaneous tissue and the superficial part of the breast tissue. Few echogenic foci were noted

within, associated with diffuse surrounding fat stranding and dirty shadowing. These imaging characteristics were suggestive of chronic granulomatous changes (Figures 1 and 2).

Bilateral axilla showed multiple sub-centimeter to centimeter sized non necrotic reactive lymph nodes (Figures 3 and 4).

Mammography was done to understand the exact extent to which the almond oil was injected. In both the cranio-caudal and the medio-lateral oblique views, mild diffuse skin thickening was noted with radio-opacity in the subcutaneous tissue and the superficial part of the breast tissue (more in the right breast as compared to left). (Figures 5,6,7 and 8). Well defined radio-opacities were also noted in the bilateral axillary regions which were suggestive of lymph nodes.

Subsequently the patient underwent MRI breast with CT cuts.

The breast MRI revealed a diffuse ill defined hypointense signal on T1 and T2 sequences and hyperintense signal on STIR sequence. Mild bilateral skin thickening was also noted (Figures 9,10,11,12,13, 14 and 15).

Axial CT cuts of the breast were also taken which revealed diffusely thickened subcutaneous tissue more in the right breast as compared to left. Hyperdensities were also noted in the superficial part of the breast tissue. Bilateral axillary lymph nodes were also noted. Underlying muscles appeared unremarkable. There was no evidence of mediastinal lymph nodes or any active infection in the lung parenchyma (No Koch's infection) (Figures 16 and 17).

FNAC of the breasts was done and the results were suggestive of acute on chronic granulomatous inflammation.

The patient was admitted in the surgery department and was put on a course of antibiotic and anti-inflammatory treatment for a period of 7 days. However on subsequent imaging follow up there was no change in the ultrasound imaging characteristics. She was later advised surgery to resect the granulomatous tissue with SOS subcutaneous mastectomy and subsequent reconstruction. The patient however refused to undergo surgery.

DISCUSSION:

The appearance and size of breasts have always been a primary concern for women. During the past century, breast augmentation has seen the usage of several unsuccessful materials.

One of the first materials to be used for augmentation was

paraffin. It was used between 1899 and 1914 till its complications came to light. These complications ranged from aesthetic failure to death and included pulmonary embolism, ulceration, fistulae, infection and necrosis. These complications would frequently lead to breast amputation.

Over the course of years different materials were used including ivory balls, glass balls, vegetable oils, mineral oil, lanolin, beeswax, shellac, silk fabric, epoxy resin, ground rubber, ox cartilage, sponges, sacs, rubber, goat's milk, Teflon, soybean, and peanut oil, and glazier's putty. The outcome with all these materials was similar— chronic inflammation with foreign body granulomas. Many of the materials had severe tissue reactions and infections. As a consequence, none of the materials proved safe and useful for breast augmentation.

Between 1940s and 1950s, half a century after the paraffin saga, silicone injections were used for the purpose of breast augmentation. These had a high complication rate, some of which were even worse, because industrial grade silicone was used and contaminants were purposely added to the silicone injections to cause sclerosis of the silicone for prevention of its migration.

Minor complications included smaller granulomas which can be treated by local resection. A more extensive involvement is characterized by skin destruction, ulceration, necrosis, and fistula formation. Treatment is much more complex when fistulae develop. Extensive surgery usually is necessary to fully excise these areas. Bilateral mastectomy is generally required to treat advanced silicone granulomatosis with ulceration and fistulae. Industrial silicone, rather than medical-grade silicone, is responsible for many major complications. However, use of medical-grade silicone also has been reported to be associated with well-documented cases of major complications, resulting in bilateral mastectomy.

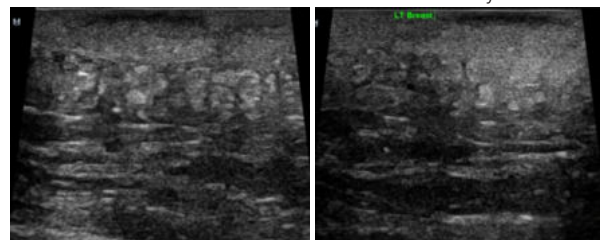
Polyacrylamide hydrogel (PAH), a novel injectable material consisting of 2.5% polyacrylamide and 97.5% non pyrogenic water is being used in Ukraine, Russia, and China for the last 20 years.

Although the most common site for PAH injections has been breasts, soft tissue contouring in the face, lips, and chest have also been the areas of use. Initially, PAH was considered an ideal soft tissue filler material. However, several reports have demonstrated numerous complications after PAH injections including migration, breast lumps, pain, infection, firmness, and disfigurement.

Thus as we have seen various materials have been used for breast augmentation and almost all of them have been associated with some sort of complications. It is imperative for the patient to outweigh the risks and benefits, and make an informed decision for undergoing breast augmentation.

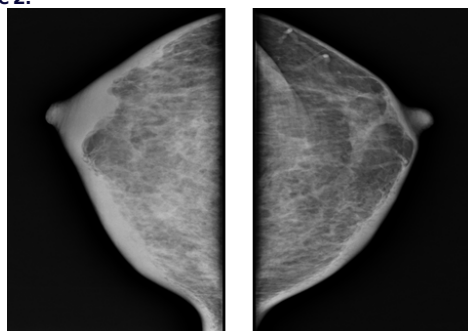
CONCLUSION:

We did not find any case in literature where almond oil was used for breast augmentation. However, as mentioned above, many different materials have been injected for breast augmentation, the results of which were tragic. Fortunately our patient didn't have severe complications like necrosis of the breast and fistulae formation which would have needed total mastectomy.

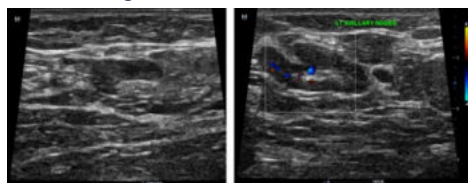


Figures 1 and 2: Ultrasound of the breasts show ill defined heterogeneously hyperechoic areas in the subcutaneous tissue and the superficial part of the breasts (right breast more than left).

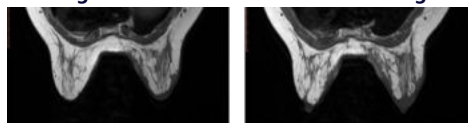
Right breast is shown in Figure 1 and left breast is shown in Figure 2.



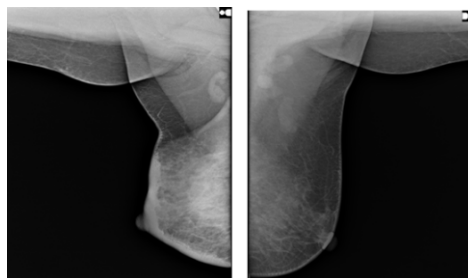
Figures 3 and 4: Subcentimeter sized non necrotic lymph nodes in the bilateral axillary regions are demonstrated in the above the images.



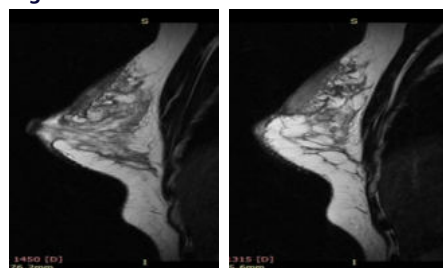
Figures 5 and 6: The above images demonstrate mammogram of breasts taken in the cradiocaudal views. Radio-opacity is noted in the subcutaneous tissue and the superficial part of breast more on the right side. Right breast is shown in Figure 5 and left breast is shown in figure 6.



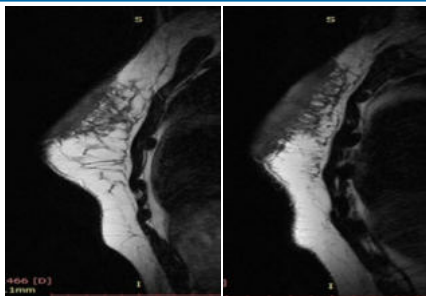
Figures 7 and 8: The above images demonstrate mammogram of breasts taken in the medio-lateral oblique views. Radio-opacity is noted in the subcutaneous tissue and the superficial part of breast more on the right side. Right breast is shown in Figure 7 and left breast is shown in figure 8. Few radio-opacities are also noted in the bilateral axillary regions which were suggestive of lymph nodes.



Figures 9 and 10: Axial T1W images demonstrate diffuse ill defined hypointense signal with mild bilateral skin thickening.



Figures 11 and 12: Sagittal T1W images of the right breast demonstrate diffuse ill defined hypointense signal with mild skin thickening.



Figures 13 and 14: Sagittal T1W images of the left breast demonstrate diffuse ill defined hypointense signal with mild skin thickening.

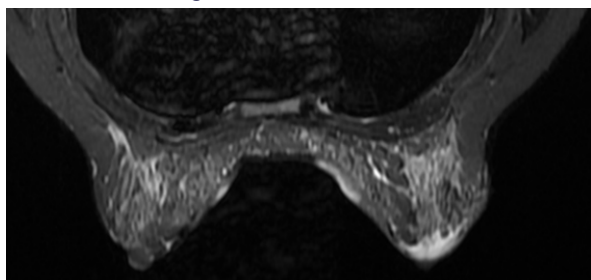
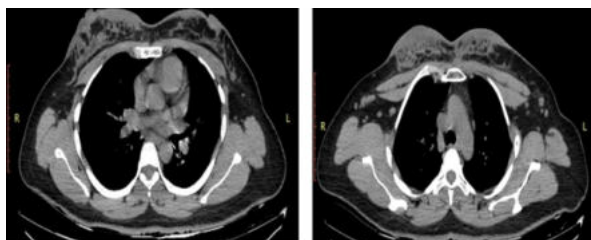


Figure 15: Axial STIR images demonstrate diffuse ill defined hyperintense signal with mild bilateral skin thickening.



Figures 16 and 17: Axial CT images demonstrate diffusely thickened subcutaneous tissue with hyperdensities in the superficial part of the breast tissue (more on the right side). Subcentimeter sized lymph nodes are also noted in the bilateral axillary regions.

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