

Imaging of Postoperative Cosmetic Breast Surgery

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ABSTRACT

Background: cosmetic breast procedures, as well as implants, are increasingly being performed and many women who had undergone cosmetic operation present for mammographic screening. There are three general categories of cosmetic surgery performed on the breast including breast augmentation, breast reduction and breast reconstruction. A wide variety of breast implants which being used in most of augmentation surgeries are available on the market and are broadly categorized by lumen number, filler type, and surface contour. **Aim of the work:** this study aimed to illustrate the role of different imaging modalities in postoperative cosmetic breast surgery. **Results:** MRI is the modality of choice for evaluation of silicone breast implant integrity. MRI is not recommended as a screening modality for implant rupture in asymptomatic women with breast implants. **Conclusion:** Since the number of cosmetic breast surgeries is increased with increased number of patients present for assessing the operation as example; implant integrity; a radiologist should be familiar with the spectrum of appearances of the complications. The imaging appearances of the cosmetic breast as common breast implants and their complications using different radiological modalities as mammogram, ultrasound and MRI are varied. **Recommendations:** In symptomatic patients, after an initial evaluation with mammography and USG, non-contrast MRI is recommended to rule out the diagnosis of rupture. Dynamic contrast-enhanced MRI could be indicated in patients with breast reconstruction surgeries after mastectomy for breast cancer or in breast implant patients with suspicious masses.

Keywords: imaging modalities, postoperative cosmetic breast surgery.

INTRODUCTION

Many women regard their breasts as important to their sexual attractiveness, as a sign of femininity that is important to their sense of self. Due to this, when a woman considers her breasts deficient in some respect, she might choose to undergo a plastic surgery procedure to enhance them, either to have them augmented or to have them reduced, or to have them reconstructed if she suffered a deformative disease, such as breast cancer. After mastectomy, the reconstruction of the breast or breasts is done with breast implants or autologous tissue transfer, using fat and tissues from the abdomen, which is performed with a TRAM (transverse rectus abdominis) flap or with a back (latissimus muscle flap). Breast reduction surgery is a procedure that involves removing excess breast tissue, fat, skin and the repositioning of the nipple-areola complex ⁽¹⁾. Cosmetic improvement procedures include breast lift (mastopexy), breast augmentation with implants, and combination procedures; the two types of available breast implants are models filled with silicone gel, and models filled with saline solution. These types of breast surgery can also repair inverted nipples by releasing milk duct tissues that have become tethered. Furthermore, in the case of the obese woman, a breast lift (mastopexy) procedure, with or without a breast volume reduction, can be part of an upper-body lift and contouring for the woman who has undergone massive body weight loss ⁽²⁾. Cosmetic plastic surgery procedures, as well as implants, are increasingly being performed. These implants are often encountered on routine imaging examinations, and

radiologists are often asked to evaluate for complications or evidence of failure ⁽³⁾. The number of women undergoing breast implant procedures is increasing exponentially. It is, therefore, imperative for a radiologist to be familiar with the normal and abnormal imaging appearances of common breast implants. Diagnostic imaging studies such as mammography, ultrasonography and magnetic resonance imaging are used to evaluate implant integrity, detect abnormalities of the implant and its surrounding capsule, and detect breast conditions unrelated to implants. Magnetic resonance imaging of silicone breast implants, with its high sensitivity and specificity for detecting implant rupture, is the most reliable modality to assess implant integrity. Whatever imaging modality is used, the overall aim of imaging breast implants is to provide the pertinent information about implant integrity, detect implant failures, and to detect breast conditions unrelated to the implants, such as cancer ⁽⁴⁾.

AIM OF THE WORK

The Aim of this study was to illustrate the role of different imaging modalities in postoperative cosmetic breast surgery.

Surface anatomy of the breast:

Breasts are modified skin glands, located on the anterior and also partly the lateral aspects of the thorax. Each breast extends superiorly from the second rib to the sixth costal cartilage inferiorly, medially to the sternum, and laterally to the mid-axillary line (**fig.1**). The nipple-areola complex is located between the fourth and fifth ribs ⁽⁵⁾.

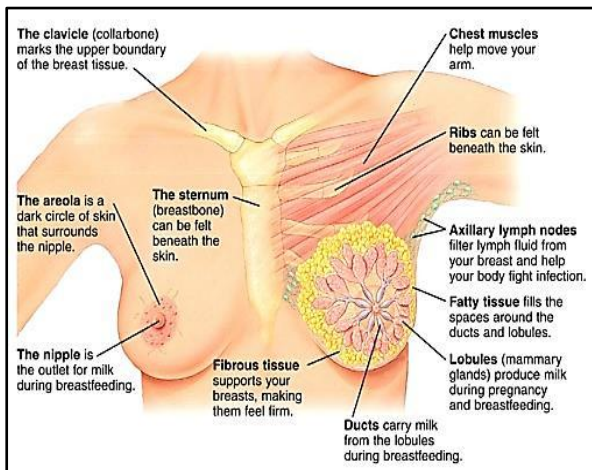


Figure 1: surface anatomy of the breast ⁽⁵⁾

MR anatomy of the breast.

Skin and nipple:

The normal skin of the breasts should appear symmetric, with a thickness of 0.5–2 mm at MR imaging and may not enhance. Although some investigators have noted that normal skin usually

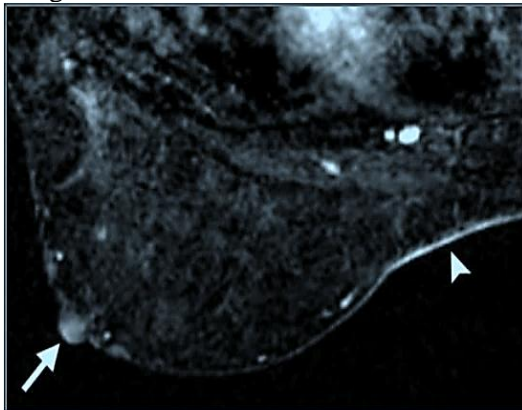


Figure 2: axial subtraction image, obtained after administration of gadolinium contrast material (post contrast), shows normal skin (arrowhead) with mild, smooth enhancement, and a normal nipple (arrow) with even more prominent enhancement ⁽⁶⁾.

demonstrates mild thin enhancement. The normal nipple-areolar complex typically enhances even more prominently, with the nipple itself whether normal, retracted, or inverted demonstrating at least a thin rim of enhancement ⁽⁶⁾.

Fascia and chest wall muscles:

The entire breast is enveloped in a duplication of superficial pectoral fascia continuous with the superficial abdominal fascia of Camper. The under surface of the breast lies on the deep pectoral fascia covering the pectoralis major and serratus anterior muscles ⁽⁷⁾.

Parenchyma and stroma:

Normal glandular parenchyma has intermediate signal intensity on T1- and T2-weighted sequences, whereas fat is of high signal intensity (**Figs. 2-5**). The fibrous trabeculae are readily appreciated as fine low-signal-intensity structures traversing the subcutaneous fat ⁽⁸⁾.

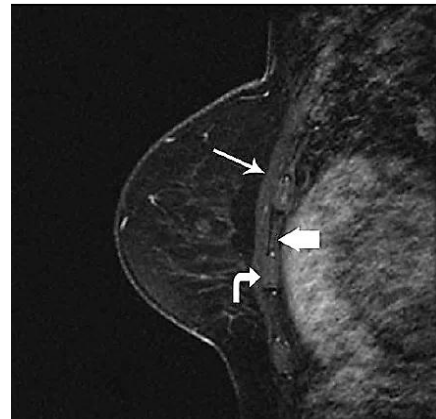


Figure 3: medial breast with pectoralis major muscle (arrow) overlying ribs (curved arrow) and intercostal muscles (thick arrow) ⁽⁹⁾.

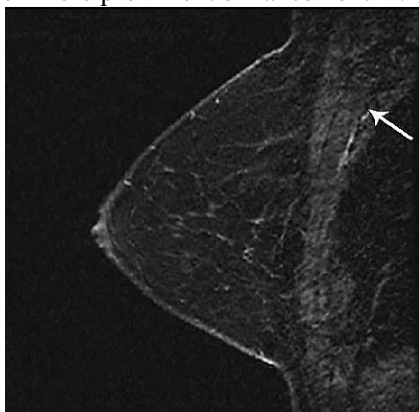


Figure 4: laterally in the breast the pectoralis minor is visualized (arrow) behind the pectoralis major muscle ⁽⁹⁾.

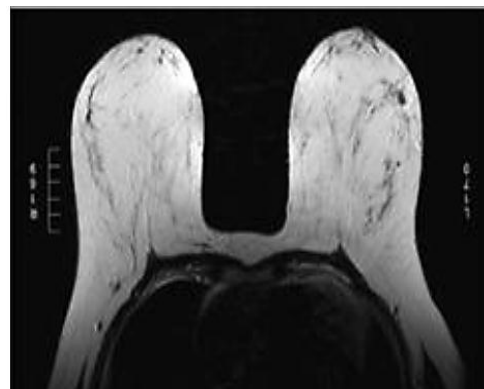


Figure 5: the anatomy of the breast is clearly defined on MR imaging. In this female with predominantly fatty tissue, the scattered fibroglandular structures and relationships of the breast to the chest wall are easily seen on this T2-weighted image ⁽¹⁰⁾

Cosmetic operations of the breast and its postoperative complications

There are three general categories of cosmetic surgery performed on the breasts (also called mammoplasty): breast augmentation, breast reduction, and breast reconstruction ⁽¹¹⁾.

A-Breast Augmentation (Augmentation mammoplasty)

Breast augmentation is performed to enhance the appearance, size, and contour of a woman's breasts. Women consider breast augmentation for many different reasons. Some women feel their breasts are too small. Some desire augmentation after their breasts change after pregnancy. Others desire to correct an asymmetry in breast size ⁽¹¹⁾.

1.Breast augmentation using implants:

Implants are most often placed for augmentation, for cosmetic reasons (bilaterally to

increase the size of both breasts, or unilaterally for an asymmetric hypoplastic breast), but also are frequently used for breast reconstruction after mastectomy ⁽¹²⁾. In patients with asymmetric breast size, a hypoplastic breast, or a chest wall deformity, an implant may be placed to achieve symmetry and it remains the main indication for breast augmentation. Breast augmentation surgery may appear simple to some surgeons, but it has many potential complications ⁽¹²⁾. Implants are typically composed of an envelope which contains the implant filling which most commonly contain either silicone or saline and are single lumen. Other variations, such as double lumen, reverse double lumen, and stacked implants ⁽¹³⁾.

Classification of Breast implants:

Generally speaking there are 2 types of breast implants (silicon filled and saline filled) an MR-oriented breast implant classification scheme consists of 14 implant types as follows ⁽¹⁴⁾.

Table 1: breast implant classification scheme ⁽¹⁴⁾

No.	Implant type	Description
1	Single-lumen gel	Silicone gel-filled
2	Single-lumen adjustable	Silicone gel-filled, to which can be added at time of placement
3	Saline-filled, dextran-filled	Dextran-filled (some early implants), PVP. filled (Bioplasty), and the rest saline-filled
4	Standard double-lumen	Silicone gel inner lumen ,saline outer lumen
5	Reverse double-lumen	Saline inner lumen, silicone gel outer lumen
6	Reverse-adjustable PVP. filled	Silicone gel inner and outer lumens, variable amount of saline added to inner lumen at time of placement
7	Gel-gel double-lumen	Silicone gel inner and outer lumens
8	Triple-lumen	Silicone gel inner and middle lumens, saline outer lumen
9	Cavon "cast gel"	Cohesive silicone gel, no shell
10	Custom	Nonstandard implant type, size, shape, fill (individualized)
11	Soft pectus	Sold silicone elastomer pectoralis muscle replacement implant
12	Sponge (not adjustable)	Ivalone, Etheron, polyethylene, plastic strips, etc (solid or hollow, simple or compound, some encased in plastic bag)
13	Sponge (adjustable)	Silicone elastomer shell (polyurethane-coated, polyurethane sponge inside, dextran-or saline-filled
14	Other	Triglyceride, or other fill than noted above

2- Breast Augmentation by Autologous Tissue Flaps

The use of a flap consisting of autologous skin and subcutaneous tissue is recognized as an excellent and reliable method for breast reconstruction in patients who prefer implant-free reconstruction. The preferred tissue donor site is the lower abdomen, where transverse rectus abdominis myocutaneous (TRAM) flaps are harvested. TRAM flaps, long the reference standard for breast reconstruction, are considered to yield superior esthetic results in comparison with both the latissimus dorsi myocutaneous flap and prosthetic implants⁽¹⁵⁾.

3- Breast Augmentation by Autologous Fat Grafting

Autologous fat is a soft-tissue filler that is easy to harvest and does not cause hypersensitivity or foreign-body reactions on implantation⁽¹⁶⁾.

After liposuction at the donor site, the fat is treated with insulin to enhance its viability and injected into the breast with or without imaging guidance. The fat may obscure native breast tissue as well as inducing inflammatory changes resulting in decrease mammographic detection of small breast cancers⁽¹⁷⁾.

4- Breast Augmentation by Polyacrylamide Gel Injection

Polyacrylamide gel contains 95–97.5% water and shows density similar to that of saline implants on mammography. The gel is seen most commonly as a single round, oval, or lobulated mass posterior to the glandular tissue but may present as multiple masses if multiple sites are injected. The gel cannot be distinguished from native breast tissue on palpation, and implant-displaced views are not helpful in the imaging evaluation. The gel may be difficult to visualize mammographically because it often can be the same x-ray attenuation as dense fibroglandular tissue⁽¹³⁾.

Because of its high water content, polyacrylamide gel is similar to water on MRI and has low-to-intermediate signal intensity on T1-weighted sequences and high signal intensity on T2-weighted sequences. The gel has similar signal intensity to glandular tissue on T1-weighted nonfat-saturated sequences. The implant is best seen separately from both subcutaneous and retro-glandular fat and from glandular tissue on T2-weighted nonfat-saturated sequence. Foci of low signal intensity can be seen on T2-weighted images and are thought to represent air or debris within the gel. A thin rim of delayed enhancement may be seen⁽¹³⁾.

B-Breast Reduction

Breast reduction offers a solution for the functional and aesthetic problems associated with large breasts⁽¹⁸⁾. Surgery for hypertrophied breast

represents a challenge for plastic surgeons. The search for a good cosmetic breast has led to the development of many techniques. The objective of a reduction procedure is primarily to reduce the size of the hypertrophic breast with appropriate redraping of the skin envelope while maintaining a viable nipple-areola complex (NAC). Secondary objectives are to achieve elevated, symmetrical breasts, with round shape, good projection, small cicatrices that are not very perceptible, and a lasting result⁽¹⁹⁾.

C- Breast Reconstruction

Breast reconstruction surgery is often performed in women who undergo mastectomy as a treatment for breast cancer⁽¹⁵⁾. Breast reconstruction can be done at any time after you have had a mastectomy. The procedure has no known effect on the recurrence of cancer and it does not appear to affect cancer surveillance. However, you will be instructed on breast self-exams and scheduled for routine follow-up appointments for surveillance⁽²⁰⁾.

Many women who undergo mastectomy opt for subsequent breast reconstruction. Current breast reconstruction techniques include the use of a prosthetic implant, an autologous tissue flap, or both⁽²¹⁾.

D- Breast Lifts (Mastopexy)

In some women, the skin is not strong or resilient enough to support the weight of the breast, causing the breasts to sag. With this condition, called ptosis, there is too much skin compared to breast tissue. To give the breast a lift, the excess skin must be removed⁽²²⁾. The goal of mastopexy surgery is to elevate breast tissue, orient the nipple areolar complex properly, and improve symmetry of the breasts in order to maximize the aesthetics of the breasts. Various procedures and modifications have been suggested to improve the appearance of sagging or ptotic breasts. Breast ptosis is seen as Cooper's ligaments and the dermis become lax and gravity causes descent of breast tissue and the nipple areolar complex⁽²³⁾.

Role of Imaging Modalities in Postoperative Cosmetic Breast Surgery

Each modality has a specific strength and weakness that may make a particular modality the study of choice for an individual patient. Factors that can influence which imaging modality should be used for a particular patient to evaluate the integrity of breast cosmetic operations⁽²⁴⁾:

1. Sensitivity and specificity.
2. Availability of an imaging modality in the community
3. The Cost of the examination.

4. Expertise of the radiologist performing and interpreting the study.
5. Contraindication or limitation of a patient that would prevent the use of a specific imaging modality.

The Technique of different breast imaging modalities

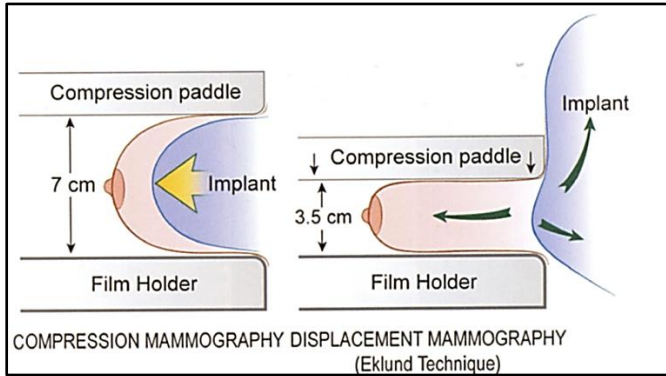


Figure 6: compression versus displacement mammography ⁽²⁴⁾

The intact silicone gel-filled implant appears as a radiodense structure sharply circumscribed from surrounding breast tissue ⁽¹²⁾. In the patient with a saline prosthesis, the implant is identified as saline filled because it is not of homogeneous density. The wall of the implant is more dense than the contents because the shell is a silicone elastomer that is more dense than the contained saline. Often folds and a fill valve are visible, and these are normal findings. The density of a silicone implant is homogeneous because the wall and the contents are both silicone, and overall, the silicone implant is more dense than a saline implant ⁽¹²⁾.

US Technique:

Ultrasound is a longitudinal mechanical wave that propagates through tissue. As the wave propagates, it interacts with the tissue via scattering and absorption, based on the acoustic properties of the tissue. Ultrasound imaging utilizes the part of the wave that is backscattered to the transducer. Two-dimensional images are generated by recording this backscattered signal over time across an array of piezoelectric transducing elements ⁽²⁵⁾. The normal appearance of implants depends on the type of prosthesis. Saline and silicone single-lumen implants have a similar appearance: an anechoic oval structure that has a prominent anterior reverberation artifact. Anterior to this component is an echogenic line that represents the wall of the implant and the fibrous capsule. The port of the saline implant is often visible on ultrasound as an echogenic focus. Double-lumen implants and

Mammographic technique:

The screening mammogram in case of augmented breast should include implant-displaced (Eklund technique) (*fig. 6*) cranio-caudal (CC) and medio-lateral oblique (MLO) views in addition to the standard CC and MLO views ⁽¹³⁾.

particularly expander implants are more complicated on ultrasound. In particular, the inner lumen may appear as echogenic line within the lumen and may simulate an intracapsular rupture ⁽¹²⁾.

MRI Technique:

MRI's usefulness derives from its ability to suppress or emphasise the signal from water, fat, or especially silicone. Its high spatial and soft-tissue resolutions make it ideal for the characterisation of breast implants ⁽²⁶⁾. MRI of breast implants, with the highest sensitivity and specificity for detection of implant rupture, together with its ability to assess the breast tissue surrounding the implant, including the chest wall; make it the imaging modality of choice to reconstructed or augmented breasts when symptoms arise ⁽²⁴⁾. MRI is the most reliable imaging method for evaluation of silicone implant integrity, with sensitivity of 74–100% and specificity of 63-100%, depending on the technique ⁽¹³⁾.

Breast Coils and Patient Positioning:

Breast coils are designed such that the patient is imaged in the prone position. She is supported above the table so that her breasts are pendent. The structure that supports the patient and surrounds the breasts holds the coil. The patient lies so that the coil wraps around her breasts (other configurations have been used to get the coil even closer to the breast). The pendent position reduces motion artifact from respiration and allows gravity to pull and separate the structures of the breast while maintaining an anatomic orientation and configuration that facilitates interpretation ⁽¹⁰⁾.

MRI Protocol:

When planning the protocol for MRI in a woman with breast implants, knowledge of the clinical question is essential. If the MRI is being performed to assess silicone implant integrity, the appropriate examination is a noncontrast study, with use of axial and sagittal images and specific sequences to evaluate the internal structure of the implant and to assess for extravasated silicone ⁽²⁷⁾. If the MRI is being performed for cancer detection, the appropriate examination is a study optimized for

parenchymal breast MRI, with precontrast and postcontrast images, ideally using fat suppression and subtraction. If the clinician desires both assessment of implant integrity and evaluation for possible cancer (e.g., a vague palpable finding that may or may not be related to the implant), and mammography and sonography are not definitive, it may be necessary to perform MRI sequences designed for implant evaluation as well as those for parenchymal assessment⁽²⁷⁾. Sagittal, axial and coronal T1-weighted localizing images are used. We then obtain axial fast spin-echo T2-weighted images and high-resolution 3D axial gradient-echo T1-weighted images. The T2 sequence helps to define fluid-containing structures such as cysts and to distinguish blood products from fluid or fibrosis⁽¹⁰⁾. The T1 sequence as well as the T2 sequence

helps to distinguish blood products from fluid or fibrosis, also we use T2 –SPIR⁽¹⁰⁾. Respiratory motion artifact is minimized by imaging in the prone position, and by phase-encoding in the supero- inferior rather than antero-posterior direction. A variety of sequences have been used in MRI to evaluate silicone gel implant integrity⁽⁹⁾.

High-resolution fast spin echo (FSE) T2-weighted imaging [retention time (TR) 5,700; echo time (TE) 120; slice thickness 3–4mm; field of view (FOV) 18cm; 2 number of excitations (NEX)] has been described as fast and accurate in detecting implant rupture, with sensitivities of 95% to 98%. Un-collapsed rupture can be subtle even on MRI, with only 50% of leaking implants identified prospectively⁽⁹⁾.

Table 2: MRI pulse sequence implant signal intensity⁽⁹⁾

Pulse sequence	Signal Intensity		
	Silicone	Fat	Water
Sagittal T2-weighted PSE (TR 4,000/TE 170)	Medium	Medium	High
Axial T2-weighted FSE with water suppression (TR 5,000/TE 300)	High	Medium	Low
Axial T1-weighted SE with silicone suppression (TR 600/TE 15)	Very low	Low	Medium
Axial IR with water suppression (TR 5700/TE 30TI 160)	High	Low	Low

Table 3: appearance of different types of breast augmentation on three imaging modalities⁽¹³⁾

Type of augmentation	Mammogram	Ultrasound	MRI
Silicone gel	Extremely dense oval masses	Anechoic with echogenic shell	T2, high signal; T1, low signal; silicone sensitive, high signal
Saline	Dense oval masses with visible folds and valve	Anechoic with echogenic shell	T2, high signal; T1, low signal; silicone sensitive, low signal
Free silicone liquid	Multiple extremely dense globular masses	Mixed hypoechoic, anechoic and hyperechoic masses with dirty shadowing	T2, high signal; T1, low signal; silicone sensitive, high signal; no enhancement
Autologous fat	Multiple or signal lucent masses with or without rim calcification	Variable; anechoic or complicated cyst; echogenic anterior margin and shadowing; solid hypoechoic mass	T2, high signal; T1, high signal; suppresses with fat suppression; with or without peripheral enhancement
Polyacrylamide gel	Single or multiple fluid density masses	Hypoechoic cysts with internal echoes	T2, high signal with foci of low signal; T1, low signal; silicone sensitive, low signal; with or without peripheral enhancement

Cosmetic Breast surgery Complications by Different Radiological Modalities

Breast augmentation for cosmetic purposes has been performed on large numbers of women, while breast reconstruction is increasingly offered to women requiring surgery for breast cancer. Although there is no evidence to link implants with an increased risk of autoimmune disease or breast cancer, women remain concerned about the possibility of implant complications⁽¹²⁾. Knowledge of the various complications resulting from breast implants and the ways in which they can present radiographically is useful so that a complete evaluation can be made, thus, increasing the accuracy of diagnosis⁽¹²⁾. When an implant is placed, a fibrous capsule forms around it, essentially representing the layer of scar tissue that forms around any device implanted in the body. The capsule may become firm to palpation, a process known as capsular contracture⁽¹²⁾. Calcifications may develop within this fibrous capsule that can be detected by mammography⁽¹²⁾. In addition to capsular contracture and calcification, potential complications of implants include breast pain, hematoma, and infection⁽²⁷⁾. A possible link between breast implants and connective tissue diseases has been suggested; studies have excluded a significant increased risk of these disorders, but do not exclude a small association or connection with atypical syndromes. Another possible complication of any implant is implant failure⁽²⁷⁾.

I) Breast implants Complications:

1. Early post - operative complications of breast augmentation include⁽¹³⁾:

- a) Seroma (peri-implant fluid collection).
- b) Hematoma.
- c) Infection.

2. Late post-operative complications include:

- a) Gel bleed.
- b) Capsular contracture.
- c) Implant rupture.

II) Autologous Reconstruction complications:

At mammography and breast MR imaging, the normal appearance of reconstructed breasts is predominantly fatty except for a small muscular component at the posterior aspect of a breast reconstructed by using a muscle-bearing flap⁽²⁸⁾. The most common benign changes seen in breasts reconstructed with autologous tissue flaps are edema, seromas, hematomas, fat necrosis, and fibrosis. In patients who undergo radiation therapy after mastectomy and reconstruction, diffuse thickening of

the skin and trabeculae may be seen in the reconstructed breast, usually in the first 6 months after completion of radiation therapy. These changes are mainly due to insufficient venous and lymphatic drainage, which is exacerbated by radiation therapy–induced vasodilatation. In many patients, such abnormalities gradually resolve within 2 to 3 years after radiation therapy⁽²⁹⁾.

III) Autologous Fat Grafting complications:

The postoperative complications of autologous fat grafting are similar to those of other breast augmentation techniques and include fat necrosis, sclerosis, and calcification and breast disfigurement⁽¹³⁾.

IV) Polyacrylamide gel (PAAG) injection complications:

Common complications seen with gel injection are unsatisfactory breast shape, breast pain, breast lumps, inflammation, and gel migration. The extent and distribution of gel inside the breast to evaluate cosmesis and the presence of gel migration are best seen on T2-weighted images. It is important to include the entire gel implant in the breast coil⁽¹³⁾. For uncomplicated injections, PAAG should appear as a large collection of homogeneous T2 hyperintense signal in the retroglandular region, anterior to the pectoral muscles. PAAG does not induce as much physiological response to foreign body as other injectable augmentation materials. It, therefore, tends to lack a thick surrounding fibrous capsule. It was reported that injected gel were unable to form a single blob in 81.5% of augmented breasts. As the injection procedure is performed blindly without image guidance, there is a high risk of gel migration if the gel is undesirably injected outside of the retroglandular space. This can potentially lead to breast asymmetry related to gel migration or due to the difference in the amount of gel injected. Breast asymmetry was found in 20-52.9 % in previous studies⁽³⁰⁾.

Infection and abscess formation are common complications, especially if the procedure is performed without sterile technique. Of PAAG augmentation mammoplasty, 14.7 % was reported to be complicated with infection. In the acute phase, the augmented breast is enlarged, with internal low signal intensity foci inside the gel on T2-weighted MRI images, signifying pus formation. Contrast-enhanced MRI shows a thick nodular and irregular rim of contrast enhancement, which is helpful in delineating the extent of infection. For chronic infection, sinus formation may be seen⁽³¹⁾.

Illustrative Cases

CASE 1

History: A 37-year-old woman who had undergone bilateral breast augmentation for cosmetic reasons.

Technique: Axial T2-weighted fast spin echo image.

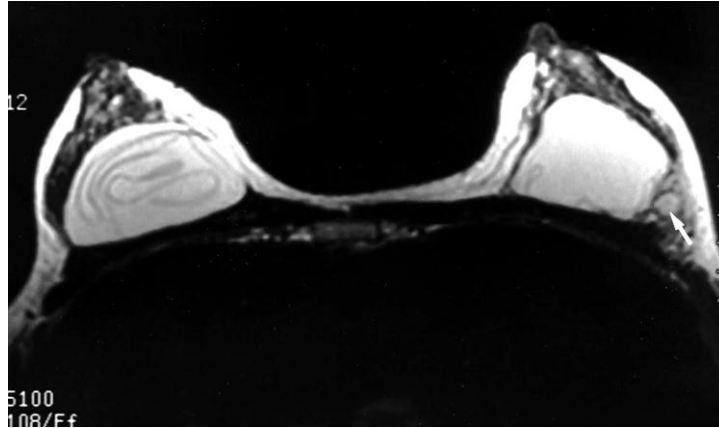


Figure 7:axial T2-weighted fast spin echo image

Findings:

MRI reveals the right implant shows multiple curvilinear hypointense lines, the so-called linguine sign, consistent with intracapsular rupture. On the left side, a focal hyperintense lesion (arrow) is seen lateral of the implant indicative of extracapsular rupture with free silicone leakage ⁽⁴⁾.

Case 2

History:

A 48 year female with history of bilateral breast implants done 12 years ago presented by discomfort and changing in the shape of right breast one month duration.

Technique:

Axial T2 Weighted Image and T1 postcontrast MRI.

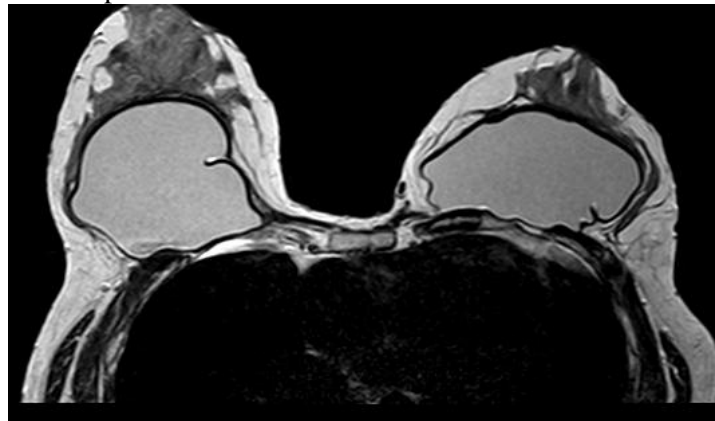


Figure 8: axial T2 weighted MRI

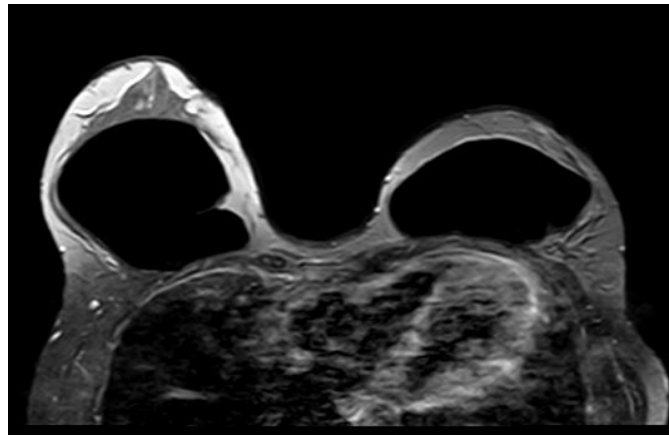


Figure 9: T1 Weighted post contrast MRI

Findings

Normal MR appearance of skin and subcutaneous tissue and nipple, Both breast parenchyma show predominant heterogenous fibroglandular element, background parenchymal enhancement mild homogenous enhancement, Both implants show multiple capsular folds.

The right implant showed a spherical rather than oval shape yet with no significant discrepancy between the AP and mediolateral diameters. A tear drop sign is noted in the medio superior aspect of the implant suggestive of a minimally collapsed intracapsular rupture (Coated from Ain Shams University Hospitals, MRI Unit).

CONCLUSION

MRI is the modality of choice for evaluation of silicone breast implant integrity.

In symptomatic patients, after an initial evaluation with mammography and USG, non-contrast MRI is recommended to rule out the diagnosis of rupture. Dynamic contrast-enhanced MRI is indicated in patients with breast reconstruction surgeries after mastectomy for breast cancer or in breast implant patients with suspicious masses. MRI is not recommended as a screening modality for implant rupture in asymptomatic women with breast implants.

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