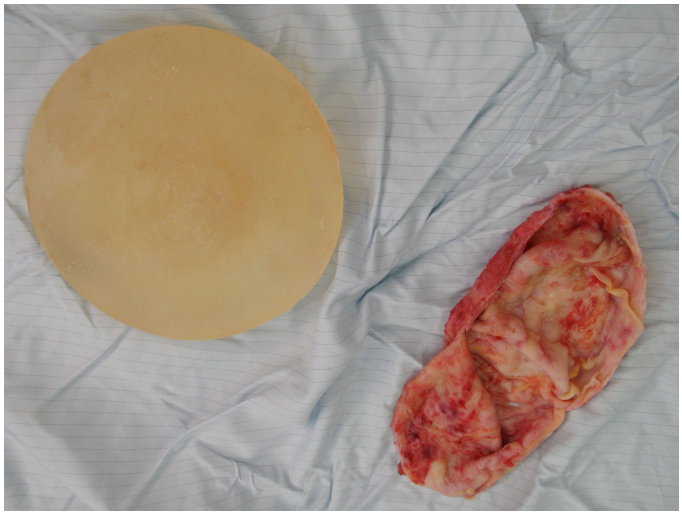
Capsular Contracture in Breast Implants

What is capsular contracture?

Capsular contracture is the term used to describe scar tissue that can form around breast implants which may cause the breasts to harden, may cause the breasts to look or feel different, and may cause some discomfort from the tightening of the capsule. Capsular contracture is an unpredictable complication, but it is also the most common complication following breast augmentation.

Capsular contracture rates range from 8-9% in primary breast augmentation to upto 25% for breast reconstruction patients. Although presently we do not know what causes a capsular contracture to form and why one breast may harden while the other remains completely soft and natural, what is known is that is multifactorial. A normal capsule is a flimsy, transparent structure. As thickening occurs, collagen is laid down in layer upon layer, ultimately becoming apparent as a change in the shape of the breasts, a change in the softness of the breasts, and in some cases causing pain.

This photo shows grade IV implant capsule which was wrapped around the implant, removed and opened out.



Miss Anita Hazari MBBS, MD, FRCS (Plast)
Consultant Plastic & Reconstructive Surgeon
01342-330396 anitahazari@uk-consultants.co.uk **www.anitahazari.co.uk**

How is capsular contracture diagnosed?

A capsular contracture is usually diagnosed on physical examination by a plastic surgeon. You may notice that one or both of your breasts are not as soft as they once were or may actually begin to harden, your breasts may begin to look or feel different, or you may experience some discomfort from the tightening of the capsule. The appearance of any of these signs should alert you to the need to have your breasts examined by a plastic surgeon at your earliest convenience.

Your plastic surgeon will examine you to determine if indeed you have a capsular contracture. The examination of each breast is classified on a scale of I to IV, as described by Baker:

Grade I: The breast is soft and normal

Grade II: The breast is less soft than normal, and the implant can be palpated

Grade III: The breast is firm, the implant can be palpated easily, and starts to look different or distorted.

Grade IV: The breast is hard, tender, painful, and the shape distortion is pronounced or severe

What causes Capsular Contracture?

The causes are multi-factorial and depends on the type of implant, its coating, the position/ placement of the implant and the intra and post-operative precautions taken. It has also been attributed to the presence of bleeding around the implant. Although the underlying reasons are still not fully understood, there is a well-established correlation between capsular contracture and the presence of subclinical infection with development of bio-film around the implant. Most capsular contractures will present within a year or two following surgery. A small number will form capsular contracture several years after implantation and potential causes are likely to be from inflammatory changes mediated by gel bleed/leak.

How can the risk of capsular contracture be reduced?

Textured implants are associated with a lower incidence of capsular contracture than smooth surface implants. In scientific studies, however, this benefit has been shown only in subglandular (above the muscle) breast augmentations.

Under the muscle placement (subpectoral or dual plane) of the implant reduces the risk of capsular contracture to approximately 8- 12% over your lifetime. On top of the muscle (submammary or subglandular) has a 12-18% chance of capsular contracture.

Intra-operative precautions such as sharp dissection technique, good haemostasis (stopping bleeding points in the tissues), suction drains, irrigation of the implant cavity with a mixture of iodine/ antibiotic solution, IV antibiotics, aseptic implant insertion with minimal manipulation, have been shown to reduce the incidence of capsular contracture. A study by American surgeon William Adams has shown that irrigation of the breast cavity with antibiotic mixture, before implant placement, alongwith the techniques described above can reduce the capsular contracture rate to 2-3%.

Massage, Vit E, implant movement exercises have failed to prevent capsular contracture in scientific studies, but are anecdotally used by some plastic surgeons.

Can capsular contracture be seen on a scan?

Though it is possible to visualize the thickened capsules radiologically with a mammogram, ultrasound or MRI, these are more useful for detecting leaks or ruptures. The diagnosis of capsular contracture is made on examination and is a clinical one.

What treatment methods are available for capsular contracture?

Surgery Once capsular contracture has formed, treatment is generally limited to surgery, especially once the breast becomes hard and painful. Surgery involves removing the capsule (total capsulectomy) and exchanging the implants for new ones. The placement of the implant can be changed from on top of the muscle (subglandular) to underneath the muscle (subpectoral/ dual plane).

Polyurethane coated implants are useful in women who have had more than one or two operations for capsular contracture. These are silicone gel filled implants covered with a polyurethane foam coating. These were withdrawn worldwide in 1991 following concerns that the polyurethane coating which degraded with time might release a carcinogenic breakdown product (2,4toluenediamine). In 2005, the implants were CE marked and are available for use in the UK, provided patients are informed of the small, unquantifiable carcinogenic risk. These implants have been shown to significantly reduce the risk of capsular contracture in scientific studies.

Zafirlukast (Accolate) belongs to a class of drugs called leukotriene inhibitors, which are used to treat airway problems such as asthma. Accolate has been used since 1996 for the treatment of asthma in adults and children over 12 years. It is well tolerated, however, it can have possible side-effects such as headaches, nausea, and rarely, liver disease. It has been show in some studies to improve capsular contracture with breast implants if taken 20mg twice a day for 3-6 months, resulting in softening of the capsule in 50% of patients. However, as this would be an 'off-label' use, patients have to give their informed consent. It is advisable to undergo blood tests (to look at the liver profile) at 0, 3 and 6 months to ensure that liver function is not affected. If it does become affected, and if mild, stopping Accolate can reverse the changes. However, these changes can very rarely progress to liver failure.