KATARZYNA MACKENZIE

PLASTIC SURGEON

Breast Augmentation

Breast augmentation is a procedure to increase breast size and enhance breast shape by the use of implants or lipofilling. It is beneficial for women with naturally small breasts or when their breasts have lost volume from weight loss, breast feeding, pregnancy, ageing or for those with asymmetrical sized breasts.

The ultimate goal of breast augmentation is to enhance a patient's natural proportions and create a more symmetrical, aesthetically pleasing breast profile which is long lasting. The exact procedure is tailored to meet a woman's individual needs.

Length of surgery	1-1.5 hours
Anaesthesia	General anaesthetic
Hospital stay	Day case or 1 night
Risks/complications of surgery	Frequent: Bruising, swelling, temporary numbness Infrequent: Infection, bleeding (haematoma), delayed wound healing, nipple necrosis, asymmetry, poor scarring, capsular contracture, rippling, implant rupture
Recovery	5-10 days until socialising with close friends and family 2-3 weeks until return to work and normal social engagements 4-6 weeks until swelling and bruising disappears 6 weeks sports bra day and night. Wired bra after 2 months 4 weeks travel abroad 8-12 weeks until return to gym and other strenuous activities 3-6 months until final result
Driving	2 weeks
Sleeping position	Sleep on your back
Follow up	1 week, 6 weeks, 3 months, 6 months
Duration of results	Long-lasting however implant replacement likely

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Breast augmentation information sheet

Any plastic surgery procedure is a very personal choice and understandably there are a number of questions that arise. This information sheet is a general guide for patients considering breast augmentation under the care of Dr Mackenzie. It should provide the answers to some questions that you may have. There are many factors that can affect your individual operation, your recovery and the long-term result. Some of these factors include your overall health, previous breast surgery, chest size and body shape, any bleeding tendencies that you have and your healing capabilities, some of which will be affected by smoking, alcohol and various medications. Such issues that are specific to you need to be discussed with Dr Mackenzie and are not covered here. Please feel free to ask her any further questions before you sign the consent form.

Introduction

Breast augmentation surgery increases or restores breast size using silicone gel implants or in some cases, fat transfer. It involves the placement of an implant beneath the breast tissue, either above or below the muscle.

Breast implants are used to make the breasts larger, firmer and fuller. They are available in a variety of types and sizes and their shape is either "round" in profile and base, or oval shaped with an anatomical contour. They are usually made of an outer layer of silicone, filled with cohesive silicone gel. This is a soft gel which is highly elastic with the approximate specific gravity and feel of normal breast fat. Silicone materials have "memory" ie the shell and gel components of an implant can be stretched, and they will return to their normal state when relaxed.

Breast augmentation has a long and successful track record in satisfying women who wish to enhance, regain or restore balance to their figures. A great deal of data about the behavior of silicone implants in the body has been gathered over the last 45 years. There is no known link between silicone implants and increased risk of breast cancer or autoimmune disease.

Breast augmentation is an elective cosmetic procedure and is never deemed medically necessary. Therefore, it is essential that the patient is making the right decision– my role is to provide them with all the information they need to make an informed decision. The best outcome is achieved when we both agree that the chosen operation will achieve the goals and expectations, and that you understand and have carefully considered the potential benefit from the procedure against the possible unwanted effects and risks from it.

One aspect of breast implant surgery that it is important that patients fully understand before going ahead, is that they are making a lifelong commitment to breast surgery and will probably require a repeat procedure at some point.

What is the goal of breast augmentation?

Breast augmentation is designed to enlarge the breast and enhance the shape of the breast. Other common goals of breast augmentation include:

- Restoring fullness lost after pregnancy, breastfeeding or weight loss
- Enhancing cleavage
- Improving figure by balancing the hips
- Enhancing self image
- Correcting noticeable breast asymmetry (tuberous breast deformities)

Who is a good candidate for breast augmentation?

Breast augmentation is a highly individualized procedure. The following are other common reasons why you may want to consider breast augmentation:

- You believe your breasts are too small for your body
- You feel self-conscious wearing a swimsuit or form-fitting or low-cut tops
- You feel that your breast size is not proportional to your figure
- You lost volume after pregnancy and breastfeeding
- Your breasts have become smaller due to weight loss
- One of your breasts is noticeably smaller than the other

Breast augmentation may be a good option for you if:

- You do not smoke as smoking slows down the healing process and increases the risk of serious complications during and after surgery
- You are physically healthy and you are not pregnant or breastfeeding
- You have realistic expectations
- Your breasts are fully developed

Are there any reasons for a patient to not have breast augmentation?

Patients who are actively smoking or on blood thinning medication such as aspirin and warfarin are at a high risk of complications such as bleeding or wound infections and delayed wound healing. It is advisable to not consume nicotine in any form for six weeks before the breast augmentation and a similar time after. Medication such as aspirin or warfarin may need to be stopped (if this is not for an essential or life-threatening condition) at the appropriate time before surgery. This should be discussed with Dr Mackenzie or GP.

What are the limitations of breast augmentation?

- The surgery will not alter underlying basic defects in breast shape and form
- Major asymmetries may be improved but will not be completely corrected with breast augmentation alone. If breast size and/or nipple position asymmetries are severe, additional procedures to further improve symmetry may be necessary
- Breast augmentation cannot uplift breasts that have begun to droop. If you're experiencing that problem then you may need to consider a breast uplift operation, known as a mastopexy
- If your breasts are widely spaced apart to start with, they are likely to remain widely spaced
- If your nipples point in different directions beforehand, sometimes they may look more uneven after your breast enlargement
- If the creases below each breast are at different levels, a difference may remain after surgery
- Any implant larger than 350cc induces predictable negative consequences over time on the tissues of the breast. Larger implants will stretch your tissues over time and will cause more tissue thinning and sagging than a smaller implant
- If you want a totally natural breast, you should not have a breast augmentation

What type of breast implants are used and is silicone safe?

Breast implants come in different shapes and sizes and whilst almost all consist of an outer casing of silicone, different materials or fluids are used to fill them. The implants used in breast augmentation surgery are filled with either silicone or saline solution. Each has its benefits and drawbacks. Briefly stated, these considerations are:

- Saline implants are safe as possible and can be inserted such that the scar is minimized. However, should they leak, they need to be replaced. In addition, they may feel unnatural and they may cause a rippling of the skin of the breast, particularly in slim women with little breast tissue

- Silicone gel-filled implants provide a more natural feel to the breast, maintain the shape and are less likely to cause rippling. At present, most surgeons use cohesive gel silicone implants, which do not leak if the shell is damaged. Silicone implants however need a slightly longer access incision to place them

Dr Mackenzie uses silicone implants in aesthetic breast augmentation. This is because these provide a better shape with more natural feel and the best aesthetic results. Dr Mackenzie uses cohesive silicone gel implants (gummy bear) that retain their shape for the long term and are less prone to rippling.

The various implants can also have different surfaces and many different implant manufactures are available. Dr Mackenzie will recommend a particular implant to you based on your initial consultation

and any subsequent discussions. Implant manufacturers occasionally introduce new styles and types of breast implants, so there may be additional options available.

- **Smooth breast implants** have the softest feeling. They can move with the breast implant pocket, which may give more natural movement. However, smooth implants may have some palpable or visible rippling under the skin

- **Textured breast implants** develop scar tissue to stick to the implant, making them less likely to move around inside of the breast and become repositioned. Texturing offers some advantage in diminishing the risk of a capsular contracture. If an implant is placed under the breast (on top of the muscle) it should have a textured surface to minimize capsular contracture. However, when under the muscle (or dual plane) smooth and textured implants have similar low rates of capsular contracture

- **Polyurethane coated implants**-in some cases of exchange surgery Dr Mackenzie also uses polyurethane coated implants, which are thought to have a reduced capsular contracture rate

Silicone implants have been extensively tested around the world and have been shown to be safe and have no link with breast cancer or connective tissue disorders (which were concerns in the past). Although some women with implants may have experienced health problems such as connective tissue diseases (such as lupus and rheumatoid arthritis), trouble breastfeeding, or reproductive problems, current evidence does not support an association between breast implants and these conditions.

Dr Mackenzie uses several different manufactures for different situations and will discuss these with you. Please note, Dr Mackenzie keep up to date to recommend the most appropriate implant at the time of surgery, but these recommendations do change as new data and implants become available.

Most implant manufactures offer a guarantee to their implants, which may be time-limited or in some cases lifelong. It is important to note that these guarantees often have limitations and do not usually cover the cost of the surgeon, anaesthetist or hospital in the event of there being a need for replacement surgery.

What are the different shapes of implants?

One of the more recent choices in breast enlargement involves the option of having either round or teardrop-shaped implants (also called anatomical implants as they resemble the anatomy of the breast).

Anatomical implants (teardrop shaped)

Anatomical implants are suitable for certain breast shapes. The importance of the tear drop or anatomical implant shape relates to creating a natural looking breast and in particular the slope of the upper pole of the breast They can also help lift a breast that has a mild amount of droop. In patients who are slim, have little breast fat or in whom there has been some droop following children or weight loss the tear drop (anatomical implant) produces a more natural look which also gives more lift to the nipple.

Round implants

Round implants suit patients who are younger and have little or no droop in the breast and who also have a reasonable amount of breast tissue to start with. Round implants can sometimes give more upper pole projection: this means that the part of your breast above the nipple may be fuller. However, with a carefully chosen implant, a very natural and pleasing breast shape can be achieved with a round breast implant.

Interestingly, studies have shown it is impossible to determine whether an implant is round or anatomical (shaped) when analysing breasts that have been augmented.

Nevertheless, for most breast augmentation operations, Dr Mackenzie will recommend a round silicone gel filled prosthesis. This is because they have a natural feel, produce a fuller, more desirable look to the breast, do not suffer the problem of distortion from implant rotation and have very good long term durability.

Where will the implant be placed?

Conventionally breast implants are placed either in a subglandular position (between the breast tissue and the muscle on the chest wall) or in a submuscular position (beneath the muscle on the chest wall). The site chosen depends on the amount of breast tissue present and the breast skin laxity. A more natural result is usually achieved under the muscle because the edges of the implant will have thicker tissue coverage. However, this does not always completely fill out the breast skin because the muscle can restrict the expansion of the breast. A more recent approach has been to place the implant beneath the muscle, whilst freeing off the breast from the superficial surface of the muscle. This is known as a 'dual plane technique'. Dr Mackenzie uses either a subglandular or dual-plane techniques to achieve the most natural look she can for her patients. Dr Mackenzie will advise you where she would like to place your implants and why, however the choice of pocket is usually dictated by anatomical features.

Subglandular pocket

- On top of the pectoralis major muscle but under the breast gland
- If you have enough soft tissue cover above your nipple
- It may be an option depending on your breast size to start with
- Recommended for active body builders with well developed pectoralis muscle
- Capsular contracture is slightly more common
- May exhibit ripples

Dual plane subpectoral pocket

- If there is not enough of soft tissue above your nipple
- A partial subglandular pocket is created over the lower part of the breast and a subpectoral pocket (under the muscle) is created, with release of the pectoral muscle at its lower border
- Allows good implant coverage of the upper pole whilst also allowing the breast gland to drape over the implant
- Can help achieve a more natural look
- Slightly lower risk of capsular contracture
- Breast can be distorted with muscle contraction
- Space between breast can be widened
- Less control of upper medial fullness of breast

How long do implants last?

Although the breast implants are all durable and made to a high standard, they cannot be considered 'lifetime devices'. Any woman undergoing a breast augmentation should assume that at some future date it will need to be revised or adjusted, either because her anatomy has changed (e.g. because of pregnancy and breast feeding) or because the implant is susceptible to daily wear and tear.

Outer shell of the implant may develop tiny cracks. The body however always produces a thin covering around all implants called a capsule from an early stage. Recent developments in silicone technology have produced cohesive silicone gel which is the most advanced silicone implant available. Rather than being a liquid this is a solid gel which has the same consistency as gummy bears. After many years of wear and tear should any cracks develop these implants would not leak as the silicone is in a solid form. The additional protection provided by the capsule will prevent harmful leakage outside the implant.

There are many quoted figures as to how long ultimately any implant will last. An average figure is probably in the order of 10-15 years. There are however variations in wear and tear amongst different individuals depending on how much exercise you take and other lifestyle activities. Therefore, it is reasonable to say that the life of breast implants varies by person and can't be predicted.

In order to have a proper assessment of the state of your implants it is advised to have your implants examined by a specialist on a regular basis from about 10 years after your operation.

What should you consider before getting breast implants?

Breast augmentation is an elective cosmetic procedure and is never deemed medically necessary. Below are some things which should be considered before getting breast implants for breast augmentation, reconstruction or revision surgery:

- Breast implants are not lifetime devices
- The longer you have breast implants, the more likely you are to experience local adverse outcomes which include capsular contracture, reoperation, implant removal, rupture or deflation, wrinkling, asymmetry, scarring, pain, and infection at the incision site
- Many of the changes to your breast following implantation may be cosmetically undesirable and irreversible
- If you have your implants removed but not replaced, you may experience changes to your natural breasts such as dimpling, puckering, wrinkling, breast tissue loss, or other undesirable cosmetic changes
- If feeling an edge of an implant shell could be a problem for you, do not have an augmentation
- If you have breast implants, you have a risk of developing a type of cancer called breast implant-associated anaplastic large cell lymphoma (BIA-ALCL) in the breast tissue surrounding the implant. BIA-ALCL is not breast cancer. Women diagnosed with BIA-ALCL may need to be treated with surgery, chemotherapy and/or radiation therapy

How is the size of the implant chosen?

Suitable implant size is determined by breast dimensions, amount of breast tissue present and tissue laxity. Some patients want as a natural look as possible and others want a 'breast augmented look' with a fuller upper breast. This will also help determine implant shape and size. Implants do not come in cup sizes, but in cubic centimetres (cc or mls). Cup sizes are discussed but these can be inaccurate as they vary between bra manufacturers and most patients have never been formally measured. Cup size is however used as a guide to how much change is desired, although no guarantee can be given to achieve this exact amount, again because cups sizes are so variable.

If you are considering a large augmentation (defined by an implant over 350cc), it is important to appreciate the long term implications. Over time the weight of the implant will have a greater effect on your breast tissue than a smaller implant. Your breasts will be at a higher risk of drooping with time due to the weight of the implant. Another effect of a large implant over time is the gradual loss of some of your breast tissue due to the implant placing a constant stretch on your tissue.

Determining the correct size (volume) of implant is one of the most crucial decisions to make. The best outcome is achieved when both you and Dr Mackenzie agree that the chosen operation and implant will achieve the goals and expectations. Dr Mackenzie will usually guide you towards a range of possible implant sizes, but ultimately the size will be your decision. If Dr Mackenzie feels that you have chosen an unsuitable implant, she will talk about this with you and explain why.

To confirm your choice of size, you will be asked to perform a rice bag test at home after the first consultation. This gives a good indication of how the breast implants will look on you and is something that can be done in the privacy of your own home.

From these discussions, measurement and rice bag test, Dr Mackenzie will recommend a range of implant sizes. This is routinely decided on at the time of the second outpatient meeting. You may try these implants in a soft bra, which will help narrow down the range. It is then usual for Dr Mackenzie to order several sizes of implants for the operation, one either side of the recommended size. This allows the final decision to be made during the operation, thus producing the best possible result. The unused implants are returned to the manufacturer without incurring a charge.

What to expect from breast augmentation consultation?

You would normally meet Dr Mackenzie for at least two pre-operative consultations. The first of which is mainly about assessment and the formulation of an operative plan specific to your breast. You should then have a cooling-off period before booking surgery and meeting Dr Mackenzie again for a second consultation. Dr Mackenzie usually summarises this consultation in a letter to you and if you decide to move forward towards surgery, a second consultation is scheduled to go over things once more and discuss the possible complications in more detail. It is usual for Dr Mackenzie to write to your GP but often patients do not want this, in which case no communication is made.

During your breast augmentation consultation Dr Mackenzie will discuss:

- Your surgical goals
- What outcome do you expect from the surgery? What is your chief motivation in undergoing breast augmentation?
- Your complete medical history, breast history, social history and drug allergies
- Your previous breast surgery
- Your current prescription medications, including vitamins, herbal supplements, alcohol, tobacco and drug use. Make sure to tell your doctor about any herbal supplements you take, as some of them may cause bleeding problems

Dr Mackenzie will also:

- Evaluate your general health status and any risk factors

- Ask you to look in a mirror and point out exactly what you would like to see improved
- Examine and measure your breasts, including detailed measurements of their size and shape, skin quality and placement of your nipples and areolas
- Take the photographs
- Discuss your expectations with you. An honest discussion will help determine a satisfactory outcome
- Discuss your options
- Discuss choice of implant, size of implant, placement of implant
- Discuss likely outcomes of breast augmentation surgery and any potential complications
- Mammogram, blood tests, a heart trace (ECG) and a chest X-ray may need to be organised

Preparation for surgery

It is important to avoid taking any aspirin or products containing aspirin for 2 weeks either side of the operation since aspirin has an adverse effect on bruising as it thins the blood. The same is true for non-steroidal anti-inflammatory drugs (such as Brufen, Nurofen and Voltaren) and vitamin E tablets. You may also be asked to stop taking naturopathic substances such as garlic, ginko, ginseng and St John's Wort as they may affect clotting and anaesthesia. Always tell your surgeon EVERYTHING you are taking.

For procedures lasting longer than 1 hour it is normal practice to stop the contraceptive pill one cycle before the date of surgery. For smaller procedures may not be necessary and you should discuss this with Dr Mackenzie before surgery.

Some patients find homeopathic remedies such as arnica helpful to reduce bruising although it is very difficult to "prove" their efficacy scientifically. If you wish to use arnica you should begin 2-3 days before the operation and continue for a week afterward.

If you are a smoker it is absolutely imperative that you to stop for 6 weeks before surgery and for 6 weeks afterwards so as not to restrict the circulation to the skin. This restriction applies to all forms of nicotine including patches, inhalers and nicotine chewing gum!

Surgery requiring general anaesthesia is most safely conducted when patients are fit and healthy. General anaesthetic is unwise in patients who are unwell with viral illness or colds.

Baseline mammogram is required before surgery.

On the night before surgery we would ask that you eat well and remain well hydrated. In most cases you will be asked to come to the hospital at 7:00am on the morning of surgery, having had nothing to eat from midnight. Clear water can be drunk up to 2 hours before surgery and tea without milk or

coffee without milk can also be taken. Milk is considered to be solid food and cannot be taken within 6 hours of the start of surgery.

On the morning of surgery, you will be admitted to the ward. You will meet the anaesthetist who will discuss the anaesthetic with you in detail and you will also see Dr Mackenzie who will mark the surgical site as required and complete the consent form for surgery with you.

While making preparations, be sure to arrange for someone to drive you home after your surgery and to help you out for a few days at home.

What is involved in the operation?

Breast augmentation is a cosmetic procedure carried out under general anaesthesia. It usually requires one night stay in hospital after surgery.

The operation involves making an incision in the breast crease and creating a pocket under the breast tissue either in front of or behind the pectoral muscle. Bleeding points will be sealed, implant sizers used, and then final implant selected and inserted using touch free technique into the pocket. The incision will be closed with dissolving sutures and covered with a light dressing. The wounds are covered with a surgical tape. You will then either be placed into your post- surgical bra or a supportive dressing. If a bra is used, you'll be advised to wear it day and night for the first six weeks except while showering or bathing.

Drains are rarely used in routine breast augmentation by Dr Mackenzie. However, in some cases of revision surgery or when additional surgery (such as a breast uplift or mastopexy) has been carried out, they may be used. They will usually exit through a separate tiny incision on the outside part of the chest. If drains are used, they will normally come out the day after the operation.

If you are considering breast lipoaugmentation, the fat would be injected around the existing breast tissue that you have. You may need a mammogram beforehand and you should be aware that there is ongoing research in to the interaction between the transferred fat and breast tissue and as to whether the transferred fat affects screening for breast cancer afterwards. To date research suggests that this technique is safe to use and that experienced breast radiologists can tell the difference between transferred fat and other changes on mammograms. You should always tell a radiographer if you have had fat transferred to your breasts before having a mammogram.

Where will the incisions be?

Several different incisions may be used to insert breast implants. However, the most common incision used by Dr Mackenzie is inframammary crease incision. It is about 5cm long and close to the infra-

mammary fold (crease of skin beneath the breast). This allows complete visualization of the pocket, good access to correctly position the implant whilst placing the scar in an area that usually heals well and is unsightly.

If you have a significant amount of drooping to your breast tissue and nipple, a breast lift can be recommended when having a breast augmentation. This is to help you achieve a pleasing breast shape as well as size following your breast augmentation surgery. A mastopexy can either be performed with or without breast implants. This will result in further scars around the areola, vertically down from the areola and sometimes under the breast crease too.

What can you expect after breast augmentation?

It is vitally important that you follow all postoperative instructions provided by Dr Mackenzie. Your surgeon will also provide detailed instructions about the normal symptoms you will experience and any potential signs of complications. It is important to realize that the amount of time it takes for recovery varies greatly among individuals.

You may expect the following immediately after the procedure:

- You will be placed in a support bra to wear day and night for 6 weeks
- You will walk immediately after breast augmentation surgery
- Keep wound dry for 48hours
- Breast augmentation surgery stretches the breast tissue and can be painful—especially when implants have been placed under the muscle. Typically, the most pain is experienced within the first 48 hours after breast augmentation surgery. It is effectively treated with oral pain medications
- Your breasts may feel tight and sensitive to the touch and your skin may feel warm or itchy. You may experience difficulty raising your arms
- Some discoloration and swelling will occur initially, but this will disappear quickly. Most residual swelling will resolve within a month
- You should refrain from lifting, pulling or pushing anything that causes pain and limit strenuous activity or upper body twisting

Recovery from a breast augmentation procedure occurs over a period of six months or more. In the first couple of days, managing pain and avoiding complications is your top priority. After several months, you can start evaluating the aesthetic outcome of your surgery. It is important to remember that the time it takes to recover varies greatly among individuals.

- Plan to take about two weeks off from work, depending on the physical demands of your job
- Intimate contact will be guided by your comfort

- 8-12 weeks until return to gym and other strenuous activities. Exercising too early can cause seroma, a collection of clear fluid around your implant, which may require drainage
- The initial tapes placed during your surgery should be left undisturbed for the first week, by which time your wound will normally be healed. After this time, it is advisable to apply Micropore tape to the scars for another four to six weeks. This often leads to a better quality scar
- Many people are able to drive after 5 to 7 days, depending on their level of discomfort. One consideration is that wearing a seat belt may be uncomfortable. For your own safety, it is far better to delay driving until you can wear a seat belt
- You will be able to return to sedentary activity (i.e. an office job or light duties) within a few days to a week, depending upon how you feel
- Light exercise, such as gentle sessions on an exercise bike can be started at 3 to 4 weeks. Starting any earlier than this may result in more swelling to the area around your breasts
- Scars from breast augmentation usually take many months, or even a year to settle. In the period immediately following your surgery, these scars may be firm, red, raised, lumpy and itchy due to a build-up of excess scar tissue. As your skin strength returns and the scars mature, they will become softer, flatter and more natural in colour and texture. This process usually takes about 18 months and can be helped by daily massage with moisturizing cream
- Call your surgeon immediately if you notice an increase in swelling, pain, redness, drainage, or bleeding in the surgical area, or if you develop fever, dizziness, nausea, or vomiting. Other red flags include shortness of breath, chest pains, and an unusual heartbeat
- Schedule routine mammograms at the frequency recommended for your age group

How long does the effect of breast augmentation last?

Under normal circumstances, the results of breast augmentation surgery are long-lasting; however, it's important to know that breast implants need to be replaced if they rupture. Breasts will also change due to: pregnancy, aging, weight loss or gain and hormonal factors.

After a number of years, if you become less satisfied with the appearance of your breasts, you may choose to undergo a breast revision to exchange your implants, or breast lift to restore a more youthful shape and contour.

Will breast implants interfere with breast screening?

Accurate mammograms can still be performed after breast enlargement by experienced radiographer. A special manoeuvre (Eklund) has been developed to allow the breast tissue to be x-rayed around the implant by assessing it in two directions instead of only one. This allows accurate mammography without loss of accuracy compared to women without implants so please inform the radiographer at the time of your x ray about your implants. However, it is possible that around 5% of the breast will

not be visible on a mammogram after you have had implants. It is recommended that women with breast implants should have their screenings only at dedicated centres.

In some instances, other types of examinations can be used, such as ultrasound or magnetic resonance imaging (MRI).

Is breastfeeding possible following the breast augmentation?

Breast feeding following breast augmentation is possible and is also safe. Because the implants are placed underneath the breast, or under the muscle beneath the breast, there is no damage to the milk-producing glands or the ducts.

What are the complications of breast augmentation?

In general, breast augmentation is safe with an associated high degree of patient satisfaction. Nevertheless, no surgery is without risk.
All general anaesthetics carry risks such as deep vein thrombosis and chest infection but with modern anaesthetic techniques, these are minimised.

Early complications

- Bleeding which can lead to a collection of blood (a haematoma) that needs to be drained in theatre. This is likely to be a concern in the first few days after surgery
- Infection- you are given a dose of antibiotics at the beginning of the operation. Further antibiotics are not routinely given, because this leads to antibiotic resistance. The signs of infection are increased redness, discharge from the wound, fevers or feeling unwell. If your wound gets infected, more antibiotics will be required, and sometimes admission to hospital or an operation may be needed to resolve it
- Injury or damage to tissue or implant as a result of implant surgery
- Pain- usually not severe and you can manage it by oral pain relief
- Clots in the legs or lungs- to prevent this, you will wear special stockings for 1 week after surgery and are encouraged to mobilize

Late complications

- Additional surgeries, with or without removal of the device
- Capsular contracture-tightening of the tissue capsule around an implant, resulting in firmness or hardening of the breast and squeezing of the implant if severe. With modern textured surface implants the incidence is low, probably around 5%. It is not known why this condition develops in some cases and not others. It is important to realise that the rate of getting this problem does relate to the type of implants used and the figure of 4-5% is seen with cohesive

gel implants which have a textured surface. Other implants which are not cohesive or have a smooth rather than textured surface can give rise to capsule rates as high as 13-15%

- Implant rupture, extrusion
- Implant malposition-this can happen during surgery or afterwards if the implant moves or shifts from its original location. Shifting can be caused by factors such as gravity, trauma or capsular contracture
- Implant wrinkling/rippling that can be felt or seen through the skin
- Breast pain
- Asymmetry- everyone has a degree of breast asymmetry. If this is mild, no special steps are taken to address this, and the differences that were present prior to your surgery will remain after your surgery. Sometimes, despite putting the same size implants in both sides and performing the same surgery on both sides, there can be a noticeable difference between your breasts. This may be due to a previously undetectable chest wall abnormality, increased swelling on one side, the implant changing position, the result of some blood or wound fluid collecting in the wound, or for some other reason
- Changes in nipple and breast sensation-an increase or decrease in the feeling in the nipple and/or breast. Can vary in degree and may be temporary or permanent. May affect sexual response or breast feeding
- Seroma-collection of fluid around the implant. May cause swelling, pain and bruising. The body may absorb small seromas. Large ones will require a surgical drain
- Implant palpability-implant can be felt through the skin
- Delayed wound healing
- Synmastia-this describes an effect where the implant pockets connect between your breasts, resulting in an unnatural webbed appearance between your breasts
- Poor scarring-occasionally scar revision is required. All incisions produce scars, which usually settle down over several months. However some scars can be troublesome. Hypertrophic scars are red, raised and itchy for several months following the operation. These can be treated but often result in a wide stretched scar. Keloid scars are larger and more difficult to treat but these are extremely rare following breast augmentation

Despite a successful breast augmentation operation, some patients will feel their breasts are not exactly as they were hoping. This may be due to a number of factors, but can be due to unrealistic expectations (for example, some patients are disappointed that they have visible scars, or that they have mild degrees of asymmetry or to realise that a breast lift or mastopexy was necessary to optimise their breast shape if they have a droop in their breast tissue). If further procedures are warranted, there may be further costs involved and this will be explained. Dr Mackenzie will speak frankly to you at your initial consultations to discuss what limitations a breast augmentation will have in your specific circumstances. It is crucial that you appreciate what you can expect from a breast augmentation prior to undergoing the surgery.

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Breast Implant Associated-Anaplastic Large Cell Lymphoma (BIA-ALCL)

What is BIA-ALCL?

BIA-ALCL is not a breast cancer or cancer of the breast tissue; it is a lymphoma, a cancer of immune cells. In most cases, BIA-ALCL is found in the scar tissue and fluid near the implant, but in some cases, it can spread throughout the body. When caught early, it is readily curable. If the disease is advanced, chemotherapy or radiation may be required.

What is the risk of developing BIA-ALCL?

Women with breast implants may have a very low, but increased risk of developing ALCL adjacent to a breast implant. BIA-ALCL occurs most frequently in patients who have breast implants with textured surfaces. It also appears to purely be related to the surface of the implant not to what the implant is filled with.

The current lifetime risk of BIA-ALCL is estimated to be 1:3817 - 1:30,000 women with textured implants based upon current confirmed cases and textured implant sales data over the past two decades. However, the exact number of cases remains difficult to determine due to due lack of global breast implant sales data.

What are the symptoms of BIA-ALCL?

The first symptom of BIA-ALCL is usually a swelling of the breast between 2 to 28 years after the insertion of breast implants, with an average of about 8 years after implantation. Women with breast implants are encouraged to contact their plastic surgeon if they notice swelling, fluid collections, or unexpected changes in breast shape. Patient is referred to a multidisciplinary team for evaluation.

Have there been any deaths due to BIA-ALCL?

There have been 16 confirmed deaths, (globally), attributed to BIA-ALCL since the disease was first reported nearly 20 years ago. However, when detected early before it becomes a lymphoma, BIA-ALCL is readily cured with removal of the implant and surrounding scar pocket or capsule.

What causes BIA-ALCL?

To date, no specific causal factors have been identified. Implant texturing, bacteriologic contamination, and genetic factors have been implicated and are undergoing further study. The best theory today is that a combination of four factors are required for the development of BIA- ALCL:

- Highly textured implant
- Chronic bacterial-inflammation
- Genetic pre-disposition
- Time

The source of the chronic inflammation is thought to be bacteria that have been identified around the implants in affected breasts. Evidence is accumulating that a long-term inflammatory response to the presence of these bacteria is one of the factors that may cause BIA-ALCL. Research is ongoing and cases are being monitored.

Genetic factors may play a role. Some geographic areas have reported very few cases. Ongoing data collection worldwide will help to determine whether or not there are any genetic propensities for this disease.

How is BIA-ALCL treated and what is the prognosis?

Following a physical examination, patients with BIA-ALCL symptoms may receive an ultrasound or MRI of the symptomatic breast to evaluate for fluid or lumps around the implant and in the lymph nodes. If fluid or a mass is found, patients will require a needle biopsy with drainage of the fluid to test for BIA-ALCL. This fluid will be tested for CD30 immune staining and Anaplastic Lymphoma Kinase (ALK) markers. Representative portions of the capsule should also be sent for testing.

For patients with BIA-ALCL only around the implant, surgery is performed to remove the breast implant and the scar capsule around the implant. Current recommendation is for bilateral capsulectomy (removing all scar tissue) and removal of the old breast implants. In all but a few cases, the disease has been fully resolved by this surgery alone.

Some patients with advanced cases may require further treatment with chemotherapy and in rare cases include radiation therapy and/or stem cell transplant therapy.

Breast implant associated-ALCL is very rare, and if it occurs, is highly treatable in the majority of patients. Most of the patients who have developed BIA-ALCL receive an excellent prognosis following surgical removal of the breast implants and the surrounding scar tissue capsule.

https://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/ImplantsandProsthetics/BreastImplants/ucm481899.htm

The FDA as well as the Institute of Medicine (IOM) maintain that breast implants do not impair breast health and scientific evidence continues to support that FDA-approved breast implants have a reasonable assurance of safety and effectiveness. The March 21, 2018 FDA website update acknowledges that while it remains difficult to determine the exact number of BIA-ALCL cases, there have now been 414 medical device reports (MDR) reported to the FDA Manufacturer and User Facility Device Experience (MAUDE) database as of September 30, 2017. In the MDR reports, half of the reported cases were diagnosed within 7-8 years of implantation. It is important to note that at the time of diagnosis, patients may have their original breast implants, or they may have had one or more replacements.

Of these MDRs, 272 reports include data related to the implant surface, with 242 identified as textured and 30 smooth. The update also confirms that both silicone gel and saline implants have been reported in cases of BIA-ALCL.

Why would my surgeon have recommended textured implants for me?

There are two primary reasons your surgeon may have recommended textured surface breast implants. First is that some data has shown a lower rate of capsular contracture (firm scar tissue formation around the implant). Second, all teardrop or anatomic shaped implants have a textured surface to help hold them in place. Some surgeons believe these implants can offer an enhanced shape for certain patients, perhaps with a reduced risk of rippling.

Should women with breast implants be screened for BIA-ALCL?

There is no blood test to specifically screen for BIA-ALCL. The expert opinion is that asymptomatic women without breast changes do not require more than routine mammograms and breast exams. But if a patient experiences a change in her breasts – especially if there is swelling or a lump – she should undergo immediate examination, imaging, and consultation with a plastic surgeon. If there is fluid around the implant the fluid should be aspirated under ultrasound guidance and sent for analysis.

Should patients have their implants removed because of a risk of BIA-ALCL?

The available data does not support discontinuance of textured implants. The best practice is always for the physician to discuss with each patient the known risks and potential complications associated

with any procedure. It is important for the patient and her doctor to frankly discuss all options available, and the risks involved.

Every plastic surgeon offers patients options regarding breast implants in terms of sizing, shape, and surface. Depending on a particular patient's needs, a textured implant may be preferable. The plastic surgeon must provide a frank and transparent discussion regarding the benefits and risks of implants, both smooth and textured. The patient must then make an informed decision, based upon her own assessment of her needs and the risks involved.