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**EYEBROW AND FOREHEAD REJUVENATION SURGERY**

**The Ageing Process**

The eyebrow is very important in facial expression. A lowered brow may give the impression of being tired or cross, whilst an elevated brow can give a surprised or startled look. With ageing, the brow tends to become lowered and the brow lift aims to correct this. Usually the outer aspect drops more, which can result in a sad look. This brow droop (ptosis) is often accompanied by increased frown lines across the forehead and between the eyebrows. The brow lift procedure aims to correct these changes by elevating the eyebrows and in some cases partly resecting some of the muscles responsible for the frown lines. Several techniques are available, depending on patient preference and what is required.

It should be noted that in some cases surgery may not be the best option and that treatment with botulinum toxin and/or dermal fillers may be preferable. When appropriate, this will be discussed at the initial consultation.

**Types of Surgical Procedures Available**

Brow lift procedures are tailored to the patients’ individual requirements and are frequently performed at the same time as other facial rejuvenation operations, such as a facelift and eyelid corrections. The exact technique used will depend on a variety of factors, including what effect is desired, where the scars are placed and what other procedures are being undertaken. The further the incision is from the eyebrow the more tension is required, and the less dramatic the effect. The main techniques available are described in the following sections.

**The Supraciliary Brow Lift (Direct Brow Lift)**

This is a relatively simple operation that corrects the eyebrow droop by excising an ellipse of skin above the eyebrow. By itself, it may be undertaken under local anaesthetic and can be performed as a minor operation in the Outpatient setting. It has the advantage of being simple and relatively risk-free and also enables a shaping of the eyebrow. It obviously has the disadvantage of leaving a scar above the eyebrow, although in many cases this fades extremely well and is concealed in the junction between the eyebrow and the forehead. The stitches are usually left in place for 7-14 days, and recovery is very rapid, with most patients returning to all normal activities within 3-4 weeks. **Most of the details in this information sheet are not relevant to this procedure. There is a separate information sheet specifically for this procedure.**

**The Open (Bicoronal) Brow Lift**

In this operation, the eyebrows are elevated through an incision made 1- 3cm behind the hairline. The scalp is elevated off the forehead bone right down to the margins of the orbit, and the whole forehead is pulled upwards. At the same time, the muscles responsible for the frown lines (the corrugators) and for the transverse forehead lines (the frontalis) can be attenuated to reduce these lines. An “Alice band” portion of hair-bearing skin is removed to aid in the eyebrow elevation. This procedure can produce a good and long lasting eyebrow elevation, with a long scar within the hair-bearing skin.

In some cases, a small portion of skin may be resected from the upper eyelid to optimize the result. If this is required, this will be discussed pre-operatively. The eyelid skin is sutured with a single non-dissolving stitch that will be removed 7 days post-operatively. Some patients will benefit from a full upper eyelid correction, though again, this will be decided upon at the original consultation. The same applies for the endoscopic brow lift and foreheadplasty.

**The Foreheadplasty**

This is identical to the open bicoronal brow lift, but the incision is situated just at the front of the hairline. It is used when backwards displacement of the hairline is undesirable, for instance in those with a high hairline.

**The Endocscopic (Endobrow) Lift**

This procedure is in many respects similar to the bicoronal lift, though it is performed through 3–5 incisions situated behind the hairline. No skin is excised and the elevation is dependent on deep fixation of the scalp, either to the bone or the deep muscle/fascial layer. The advantage over the open bicoronal approach is of a shorter scar and less disturbance of scalp sensation, but the results are not as dramatic and may not be as long lasting.

**The Lateral Temporal (Outer Brow) Lift**

A lateral brow lift aims to elevate the outer aspect of the eyebrow and is undertaken via an incision that extends upwards from the ear in the hair-bearing scalp.

**Pre-operative advice.**

In order to optimize the result and minimize the risks a number of factors should be considered. Smokers have a much higher risk of developing complications. It is therefore advised that they should refrain from smoking for ideally four weeks prior to, and four weeks following surgery. Aspirin and related anti-inflammatories (other than those prescribed during the admission) should be avoided for one week before and 48 hours after surgery as these can significantly increase the risk of bleeding. Many supplements (gingko, ginger, turmeric, garlic) have anti-coagulant effects and therefore can increase the risk of bleeding and bruising and should be discontinued for a similar time period. The use of arnica is debatable with no clear evidence to support either its use or its avoidance.

It is recommended that patients on the combined oral contraceptive, and hormone replacement therapy, should stop these for four weeks prior to, and four weeks after surgery, as they may be associated with an increased risk of deep vein thrombosis (DVT). For patients on the pill alternative forms of contraception should be used.

Patients who are overweight also have a higher risk of complications, and abdominoplasties should not be seen as a way of losing weight. If patients are dieting, they should aim to get to their desired weight pre-operatively. Mr Cadier and his team have the policy that such surgery will only be offered to patients with a Body Mass Index (BMI) of less than 36. The BMI is calculated from the weight and height, and there are many simple tools available on the internet to help perform this calculation. Patients with a BMI of 36 or over have much higher risks both from the surgery and the anaesthetic and the risks therefore potentially outweigh the benefits.

Botox treatment around the eyes and forehead may affect the brow position. Patients are advised therefore to be Botox free at the time of surgery. Botox treatments can resume again after 2 weeks or when all of the wounds have healed.

**What happens before the operation?**

At the initial consultation with Mr Cadier after discussing regarding the specific concerns a full medical and surgical history will be obtained. As part of the consultation a psychological assessment is made to ensure that it is appropriate to undertake the surgery, and on occasions the completion of a psychological questionnaire may be required. In all cases Mr Cadier will write to the GP to request a past medical history. Patients may refuse this but need to be aware they are exposing themselves to more risks should they omit or forget some relevant past medical history. Also, in the post-operative period should there be any problems it is important that the GP is aware what has been undertaken in order to be able to offer effective help and advice. At the consultation details regarding the operation, the aims, the limitations, the recovery and the risks will be discussed. Before the operation you will usually attend for a pre-operative nurse led assessment. You may require a blood test. Any significant health problems not previously identified may be discussed with Mr Cadier or the anaesthetist, and a further assessment may be required to determine suitability for the procedure.

At admission you will again be assessed by the nurses and you will be measured for a pair of compression stockings. These are worn to reduce the risk of thrombosis formation and should be worn for a minimum two weeks post-operatively. You will be seen by the anaesthetist prior to surgery and be able to discuss issues pertaining to the anaesthetic and also pain relief in the immediate post-operative period. You will also see Mr Cadier who may make some pre-operative markings and will take photographs for the medical records.

**The operative procedure**

The brow lift operation is usually performed under a general anaesthetic and takes 45 – 60 minutes. Drains may be inserted; these are positioned under the incision and come out behind the hairline. They are usually removed the following day. The incision may be closed with either staples or sutures. This will be discussed at the initial consultation. When staples or non-dissolving sutures are required these are usually removed at 7-14 days post-operatively. Cold moist gauze is applied to the forehead and anterior scalp to reduce swelling and a bandage applied. One dose of antibiotic is given at operation to reduce the risk of infection and one dose of steroid to reduce postoperative swelling.

**What to expect immediately after the operation**

Your blood pressure and pulse will be taken regularly following your return to the ward. You will have an intravenous infusion (a drip), which is usually removed once you are able to tolerate diet and fluids comfortably. If you experience any pain or discomfort following surgery painkillers are given either by injection or as tablets. Swelling is reduced by keeping the head elevated and by applying cold compresses. Patients are discharged either the same or the following day depending on the exact nature of the procedure(s) undertaken. Prior to discharge the dressings are removed, the drains taken out and the hair is washed. At discharge, a letter will normally be sent from the ward to your General Practitioner informing them of your admission and of the procedure undertaken. Patients are encouraged to keep their GPs informed. However, should they wish the admission to remain confidential, please inform the ward staff and no communications will be sent.

**What to expect after discharge**

A degree of tightness in the forehead is inevitable as well as some alteration in sensation of both the forehead and in the scalp region. The tightness will usually resolve after several days though the sensation changes may take several months to improve and some decrease in sensation may be permanent.

**Sleep advice**

Sleep is a very important part of the recovery process and it is important that a good night’s sleep is obtained. On the night following surgery sleeping tablets may be prescribed and a short course may be necessary for a few days. Sleeping with the head elevated by using an extra pillow or two may help reduce swelling and can be beneficial for the first few days following surgery.

**Hair care and washing**

Hair-washing with simple shampoos can be undertaken from discharge although care needs to be taken around the areas where stitches or staples are present. Combing and brushing as well as using hot air dryers should be undertaken carefully for the first few weeks following surgery. Perms and hair dyeing should be avoided for six weeks.

**Restrictions and activities**

Patients are discouraged from driving for one week following surgery and will need to be off work for no more than a week. Light activities including gym work and swimming should be avoided for about four weeks following surgery and any sporting activities where violent movement may occur (including golf and tennis) should be avoided for between six and eight weeks. It should be noted that if other procedures are being undertaken at the same time, these restrictions may be prolonged.

**Follow up**

Patients will be reviewed for wound checks and for removal of any eyelid sutures by the nursing staff in the outpatient’s department at one week postoperatively. Mr Cadier will review patients at 1 and 5 months postoperatively.

Appointments for the wound checks and any suture removal should be made prior to discharge and appointments to be reviewed by Mr Cadier in the outpatients will be sent via the post.

**Risks and complications**

As with all surgery complications can occur. These are as follows:

* Bleeding
* Fluid accumulation and swelling
* Infection
* Numbness or other changes in skin sensation or intense itching
* Pain, which may persist
* Poor wound healing
* Loss of hair around the incisions
* Over elevation of the brow – giving a startled look
* Under elevation which may require revision
* Elevated hairline
* Eye irritation or dryness
* Contour irregularities
* Eyebrow asymmetry
* Facial nerve injury with weakness or paralysis to the muscle that elevates the eyebrow
* Possibility of revision surgery
* Skin loss
* Poor scarring including hypertrophic and keloid scarring
* Deep vein thrombosis and life-threatening pulmonary embolism
* Anaesthetic complications – these will be discussed with you by the anaesthetist before surgery.
* Death

Initially the main problem is bleeding resulting in blood accumulating under the forehead skin. A return to the operating theatre on the night of surgery may be required. Wound infections are uncommon, though if they do occur treatment with a course of antibiotics is all that is usually required. Some alteration in the sensation of the forehead and scalp is inevitable but will usually improve over several weeks or months. In some cases, it can be accompanied by itching, and in rare cases by pain and tightness.

The most serious complication following brow lift procedures is injury to the branch of the facial nerve responsible for elevating the eyebrows (the frontotemporal branch). If this occurs eyebrow movement usually on one side alone may be restricted. Fortunately, in the vast majority of cases this rare complication resolves after several weeks. Problems with the scar are unusual. In the hair-bearing scalp, the scar may on occasions stretch and may show if the hair is thin or when wet. A surgical revision may help. The hair around the scar may initially become thinner, but in most cases, will regrow back to normal within 3 months. Patches of baldness (alopecia) around the scar may occur. Although these may be permanent in most cases they do not show.

On occasions, a satisfactory elevation is not achieved, or the eyebrow position may drop down again. In these cases, a revisional procedure may be required. Because of swelling and scarring under the skin, the final result of brow lift surgery cannot be assessed for several months and therefore any revisions will have to be deferred for at least this time period.

**When a portion of upper eyelid skin has been removed the following may apply:**

The scars following upper eyelid corrections are usually very inconspicuous. Occasionally they become red and the scar to the side of the eyelid may become lumpy. These problems usually resolve fully, though sometimes massaging of the scars is required. Where the stitch comes out of the skin, patients may see a very small white spot. This is termed a milia and it will resolve spontaneously without the need for any treatment.

Small cysts can form in the scar 2-3 months after surgery. Again, these frequently resolve spontaneously but sometimes need to be treated in the out-patient setting.

Some asymmetry in the eyelid folds and creases is normal, however if marked a revisional procedure may be required. Incomplete eyelid closure (lagophthalmos) may rarely result from upper eyelid skin excision, especially when undertaken at the same time as a brow lift. In most cases, it self-corrects after a few weeks, though very rarely a secondary procedure is required. In most patients, there will be factors that predispose them to this risk, and in some patients, it may be present pre-operatively. Predisposing factors include large or protruding eyes, thyroid eye disease and previous blepharoplasty surgery. These factors are normally identified pre-operatively and the implications discussed at the initial consultation.

Following any surgery there is a risk in developing a deep vein thrombosis (DVT). This is a clot in the calf vein of the leg. In itself it may result in pain and swelling. The risk is that should the clot separate from the vein it can move to the lungs resulting in a pulmonary embolism. This is a potentially life-threatening situation. All attempts are made to reduce the risk using compression stockings during and for two weeks after surgery, using pneumatic compression devices on the legs at surgery and in the immediate post-operative period, by encouraging early mobilization, advising patients to stop the combined oral contraceptive pill or Hormone Replacement Therapy (HRT) four weeks prior to surgery, and where it is felt appropriate using injections of blood thinning agents.

All surgical and anaesthetic procedures have risks, and some are life threatening, these include pulmonary embolism, anaphylaxis (severe allergic response to a medication) and adverse drug reactions. Death however remains an extremely rare complication.

When complications do occur, all attempts are made not only to remedy the problem in as speedy a manner as possible but also to optimise the final result. As with all cosmetic surgical procedures undertaken by Mr Cadier, there is a fixed fee policy, which means that no further charges are incurred for the treatment of complications that are identified within 6 months following the initial surgery. Revisional policies for aesthetic concerns have changed and, in most cases, additional fees will be incurred. Patients need to be aware regarding the limitations of surgery and have very realistic expectations about outcomes.

It should be emphasized that most patients are delighted with the result of surgery, which in turn helps to improve their confidence and self-esteem. Many patients receive positive comments from friends and colleagues telling them that they appear well, look fresher and less tired, without people guessing that this is the result of a surgical procedure. The aim is to produce a natural looking and rejuvenating effect without signs of surgery.

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**About your Surgeon:**

Michael Cadier was educated at the French Lycée in London, studied at Oxford University and undertook Medicine at St Thomas’ Hospital, London. After training in London, Salisbury and Bristol he became an NHS Consultant in the Supra-regional Plastic Surgery Unit in Salisbury in 1996, becoming Head of this Service in 1999. In his NHS practice he developed a breast reconstruction service in Portsmouth, and in 2000 was appointed as cleft surgeon to the newly established Spires Cleft Centre, for which he also became the first Clinical Director in 2002. He undertook yearly cleft lip and palate Charity missions in rural Pakistan from 1996 to 2009. He has a busy aesthetic surgery private practice along the South Coast, undertaking the full range of aesthetic surgery procedures. He has performed over a thousand facelifts, and over 1500 breast augmentations, with similar numbers for all of the more common aesthetic procedures. In 2015 he became fully private, concentrating solely on aesthetic surgical practice.

He is widely published and lectures and teaches on aesthetic surgery both nationally and internationally. In 2006 he was invited to become an examiner for the FRCS (Plast). He is the Program Director for the South Coast Reconstructive Cosmetic Surgery Fellowship, was part of the first UK delegation in the CEN in cosmetic surgery (European regulation) and chaired the CSIC Royal College committee on Clinical Quality and Outcomes in Cosmetic Surgery.

The British Association of Aesthetic Surgeons (BAAPS) is the leading organization for aesthetic surgery in the UK. He was elected to BAAPS Council in 2006 and was President of BAAPS from 2014 to 2016. One of his key objectives is to ensure that UK plastic surgeons of the future will practice aesthetic surgery to the highest possible and with that aim he has helped establish a comprehensive national training program in aesthetic surgery.