Full Arch Options - General Information

Everyone is different

As the heading states, everyone is different, and every case has indications for one form of treatment over another. Advances in dental material technology and computer aided design, coupled with our growing experience and understanding of how the body reacts to implants and different treatment approaches, means that we now have a wide range of options available for treatment of the full arch.

Main factors in our decision-making

Bone quality and volume

Every implant we place needs bone for it to be retained and successful for a useful period of time. Our diagnosis of the bone quality and volume in strategic positions of the mouth has been greatly enhanced by the use of computer aided x-rays (the CT scan, short for Computerised Tomography) which takes a series of slice images and converts them into 3D images on screen. These can be used to view and plan surgical options, removing much of the experience informed guesswork of the past. We can now approach every case with a high degree of confidence that the intended result is achievable, resulting in high success rates for treatment between 95-100%.

Bone grafting

Where bone isn't available in sufficient volume we have the option to graft bone from elsewhere in the body, or to help the body grow its own new bone with grafting materials. How the body reacts to these techniques is variable, and if we are considering harvesting bone from elsewhere in the body, we have a separate operation site and the associated pros and cons that go along with that procedure to consider.

The development of new techniques, such as the All-on-4 and Zygomatic implant procedures, removes the need for grafting in cases where bone is less than ideal. We can now plan and deliver these cases with a high level of success thanks to access to CT scans and the technical support we have developed here in the UK.

Treatment cost

With every case there will be a range of options available, with the numbers of surgical procedures necessary, the numbers of implants used, or the choice of materials used for the temporary and final restorations all coming together to give a wide range of treatment costs.

Full arch treatments could comprise of numerous small bridges fitted onto 6-8 implants, managed over a period of time with several surgery appointments necessary to complete the case, or be managed at a single visit, with a bridge fitted immediately onto four implants – same day teeth, as can be found on any internet search.

The high cost of traditional treatments, involving multiple surgery visits and the construction of numerous small bridge units in titanium or gold with porcelain teeth, has been the main driver for

the development of alternative approaches, making the All-on-4 our most popular choice today – treatment carried out on a single day, with a temporary bridge fitted onto four implants, with a very high success rate.

In many ways the various options for the treatment follows the evolution of those options, from the basic use of full dentures, through to modern concepts and designs such as the All-on-4 bridge. Zygomatic implants extend the All-on-4 concept further still, with advanced techniques necessary to plan and deliver implant fixtures anchored in the cheek bones in cases where no other bone is available.

Overview of the range of the available treatment options

Full dentures

Full dentures, made of acrylic teeth and gums, held in place by varying degrees of suction made possible by extending the dentures over a wide area including the roof of the mouth, was probably the most common treatment approach up until 30-40 years ago. Extracting all the teeth and fitting full dentures was a very common procedure, but the advent of modern techniques and higher patient expectations have reduced the demand for dentures in the UK.

Improvements in dental health of the “baby boomers” born in the decade or so after the Second World War means that increasing numbers of our aging population have retained their teeth into old age, and for some the prospect of losing teeth and having dentures is not acceptable. Single implants, or bridges supported by 2 or more implants have helped with loss of small numbers of teeth, but for many patients the fact remains that their natural teeth are not going to last a lifetime, and some form of full arch restoration other than dentures will have to be considered.

Implant retained dentures

This is the next logical step up from simple dentures, and is usually achieved with two implants being placed in each jaw onto which are mounted simple press-studs. The receiving component is mounted in the body of the denture, which can then be snapped into place.

The dentures are able to pivot on the implants and are still removed for cleaning, but the retention is improved. Wear and tear on the press-stud components means that these need to be replaced fairly frequently, meaning return trips to the surgery and follow on cost commitments.

Implant over-dentures

These again are the next step in the evolution of the implant retained bridge, where a denture is made to fit over some form of bar or series of copings, which are sitting on a small number of implants. These have a number of names depending on the actual design but the principles remain the same: the dentures can be removed for cleaning in the usual way, and whilst out of the mouth access for cleaning around the implant and fixtures with a toothbrush is simple enough.

Multiple bridges

This represents the first evolutionary stage towards a fixed, permanent restoration for a complete arch, and involves the use of several small bridges and/or single unit restorations making up a complete arch of teeth. This requires multiple episodes of surgery and fitting appointments leading to protracted treatment times. The cost is high due to the reliance on highly technical restorations and expensive materials. Critically, it also requires the presence of bone, which is where the plan can fall down.

Although traditional grafting techniques can be unpredictable, the development of modern synthetic or specially treated bone materials have made grafting a reasonable option in many cases. Sinus grafting, on one or both sides can boost poor bone in the upper arch. Implants can be placed at the same time or shortly afterwards once the graft material has healed.

All-on-4 treatment

In cases where bone is poor the All-on-4 treatment, which uses the bone most commonly retained in the mouth, comes into its own without the need for grafting. The treatment involves placing 4 implants, with the back two being placed at such an angle that a full arch of 12-14 teeth can usually be fitted without difficulty. The treatment is done at a single surgery visit when any remaining teeth are removed and the implants are placed. After a series of records for the bite and impressions are taken the bridge is then made while you wait, and fitted later the same day.

The bridge fitted initially is a temporary bridge, designed to last through the healing phase before being replaced with a permanent bridge. The final bridge is custom made with a titanium bar running through it for added strength, often allowing for teeth to be added at the back for a greater arch shape, although this isn't always necessary or desirable.

The use of only four implants and the speed of production of the finished bridge makes this a very cost effective option, so much so that it has become the most popular full arch choice for our patients by far.

The final bridge also presents a choice of option between an acrylic bridge (the most popular) and the more expensive ceramic version, with individual ceramic porcelain crowns fitted onto a titanium/ceramic bridge. More expensive isn't necessarily better, and there are many good reasons for opting for an acrylic bridge – they are easy and cheap to service or repair, and as a material it is much kinder when opposed to natural teeth.

As the most popular treatment option there now follows a more detailed explanation of the technique for those considering this as an option.

All-on-4 Implant Treatment

The All-on-4 implant procedure is a relatively new treatment concept and involves placing 4 implants, as the name suggests, and using these to support a bridge carrying 12-14 teeth. The number depends on the size of the jaw and positioning of the implants, but even 12 teeth on a bridge will meet all functional and aesthetic needs for most patients.

The All-on-4 treatment is well supported by the literature and 30+ years of clinical evidence, and we can now offer this treatment with confidence for our patients. Success rates above 95% are reported, and we offer free replacement in the unlikely event of a failed implant or bridge.

Assessing your suitability for Ao4 treatment

Placing implants is a technical procedure and requires bone of a certain quality in good volumes for a successful result to be achieved. To assess this our principle diagnostic tool is the CT scan x-ray, which enables us to see in three dimensions the shape and density of your jawbones, and to plan by doing “virtual surgery” on the scan.

The scan also shows us small anatomical features, such as nerves, which we need to avoid during surgery. We can determine the placement position, size and diameter of the implants we will need to use, and once this is done we can confirm with a high degree of confidence that surgery is a good option for you, and provide you with a full treatment plan and estimate.

Implant treatment

Implant surgery is usually performed under a local anaesthetic although some patients prefer to have sedation to make the procedure more comfortable.

On the day of surgery any remaining teeth will be removed and the bone shaped before implants are placed. The gum is stitched closed but this is all usually tucked away under the bridge once it is fitted. The stitches dissolve in about 3 weeks of the surgery and do not need to be removed.

The first bridge to be fitted is a temporary, prototype bridge – in effect our best guess on the day of surgery following our detailed preparation with the technician. This bridge can be modified over the following months, with decisions being made ahead of making the final bridge about tooth colour, shape and position, ensuring that you end up with the best possible look and feel for your new teeth.

After 6 months the final bridge is made following a series of appointments at which your dentist will remove the temporary bridge, take impressions and other records so that the final bridge can be made to the ideal design for you.

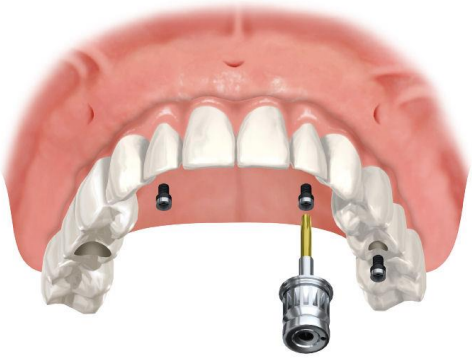

Diagram of an Upper arch
All on 4 Implant Bridge

Diagram of a Lower arch
All on 4 Implant Bridge

After implant placement surgery

After Implant surgery, some discomfort and swelling is quite normal and to be expected. It varies widely from person to person, but you will need to be prepared for 5-10 days recuperation and we would suggest you avoid any important diary commitments during that time.

The degree of swelling will depend on the number of Implants placed and whether or not additional surgical procedures were carried out. Occasionally, along with the swelling, there may also be slight bruising of the skin overlying the area, although this should fade over a week. If you are a smoker or have a pre-existing medical condition that affects soft tissue healing, the amount of swelling may be greater. You may also experience some nasal and/or sinus stuffiness.

In the majority of cases the surgery element of the treatment is completed at this first stage, and no further surgery is required. Occasionally, depending on circumstances discovered at the time of surgery, it may be necessary to modify the plan, and secondary surgical procedures may then be necessary. You will be kept advised of any changes to the plan and how these will affect the progress of your treatment, but remember this is a relatively rare occurrence and surgery is completed in one visit in the majority of cases without complication.

If there are concerns about the healing and integration of one or more of the implants a minor procedure may be required to expose and check for firm, bony attachment. Recovery from these minor procedures is usually uneventful, but you will be advised what to expect in your case should this procedure be necessary.

Potential risks of implant surgery

As with all types of surgery, there are risks involved with implant surgery, both during the procedure and the recovery period. While most of these risks are minor, it is important to consider them before opting for surgery. Some, but by no means all of the possible risks are explained below.

Some risks are entirely beyond our control and as with any other surgical procedure an element of risk cannot be avoided completely. The risks of complications are carefully assessed and weighed against the potential benefits of successful treatment in each case. The decision to proceed with

the treatment is made by you, taking into account all of the advice and information we provide to assist you in making your decision. If you have any queries or concerns, or feel that you need further explanations or information it is essential that you discuss this at the earliest stage with your dentist. Our experience is that a well-informed patient copes better with the treatment and any minor complications as they occur, so please feel free to ask any questions, no matter how trivial you may feel they are.

Below are listed some of the most common risks associated with implants. It is important to follow carefully the advice in any Pre-Operative and Post-Operative Instructions to be given in order to decrease the chances of these risks occurring.

Failed Integration

A vital part of receiving Implants is that the bone fuses with the implant – a process called osseo-integration. One of the major risks of implant surgery is that the implants fail to fuse correctly with the bone. If osseo-integration does not occur, the implants will not function properly and can be uncomfortable, become loose or fall out.

All possible steps are taken prior to surgery to assess the quality and volume of bone present, and to plan the placement of the implants by using the CT scan. Despite this careful preparation however, some implants will fail to heal as intended and the integration with the bone will fail. This is a relatively rare occurrence and most times when it occurs we cannot explain why it has happened.

In the event that integration fails in this way, the implant will be removed and surgery may be attempted again once the area has healed. In most cases the temporary bridge can remain in place, perhaps with some modification depending on which implant has failed. Our experience is that failed implants result in a delayed outcome rather than a complete failure of the intended result. No further charges will be made in the event of implant failure as we recover the clinical situation, but if the overall plan is affected you will be kept advised of any changes and the cost implications attached to those changes.

Infection at the Implant Site

Infection is an ever-present risk associated with surgery of any kind. If the infection becomes sufficiently severe, it can lead to implant failure. We routinely take steps to minimise the risk of infection during and after the surgical procedure with antibiotic cover, and it is important that you follow the post-operative instructions and complete the course of antibiotics if these are given in your case.

Damage to Existing Teeth

If implants are being placed between or next to existing teeth there is always a slight risk of damage to the natural tooth, its root or supporting bone during the placement procedure. This is more likely to occur if the teeth are very close together or their roots are badly angled, thereby reducing the space available to accommodate the implant. If this is the case, this will be identified during your assessment and discussed with you prior to surgery. In most All-on-4 procedures all remaining teeth in the jaw are removed, but this may apply if the decision is made to keep any teeth.

Surgery requires the use of instruments and retraction, which are different to those used in routine dentistry. Minor damage can occur to any teeth or restorations in the opposite jaw during the procedure. This is very rare indeed, but in any event will be corrected at the time, or at a later date if necessary, free of charge.

Nerve and Tissue Damage

In extremely rare cases, placement of implants can lead to injury to blood vessels or nerves underlying the teeth. This can lead to pain, swelling, numbness and/or a tingling sensation in the teeth, gums, lips, chin, cheek, and/or tongue which, whilst very rare, can be permanent. In most cases the nerve injury is limited to stretching and bruising caused by the surgical process and the nerve recovers in time with sensation returning to normal. This recovery can take a number of months to achieve in full.

Sinus Problems

Implant placement in the upper jaw frequently involves placing implants close to the maxillary sinus, the naturally occurring air box contained within the cheek bone. Complications can arise with the closeness of surgery to the sinus as already explained as a short-term cold-like stuffiness and congestion in the sinus.

Very rarely surgery close to the sinus, especially where the bone may be very thin as often found to the back of the jaw, can lead to an opening occurring between the mouth and the sinus. This isn't always apparent at the time of surgery and can arise during the healing process as the thin wall between the sinus and the mouth breaks down. If this should occur it can be repaired with a relatively minor surgical procedure and no further charge will be made.

Who is at particular risk of complications?

While Implant surgery has a clinical success rate of around 95%, some factors place certain patients at particular risk in relation to the complications mentioned above:

Patients who smoke or drink are at an increased risk of infection both during and after the procedure. Smoking and drinking can also each adversely affect healing time, potentially delaying the placement of the final bridge.

Patients with poor immune systems should watch carefully for signs of infection following Implant surgery.

Your finished bridge

Once the healing phase is completed, usually after a period of 3-6 months your temporary bridge can be replaced with the permanent bridge, which will have the benefit of a reinforcing titanium beam. This makes the bridge stronger and in some cases allows it to be extended further back to allow more teeth to be added, although this is not always necessary or desirable.

The production of the permanent bridge takes several visits during which impressions and special jaw records are taken allowing the technician to construct the titanium beam for your new bridge.

This is then tried in with teeth added and set in wax. You will have the opportunity to see and if necessary make changes to the appearance and bite prior to the permanent bridge being finished. It is important to know that when making the bridge that it may be necessary to add in false pink “gum”. This depends on a number of factors including the length of the teeth showing and the natural position of the lips when smiling. As a rule, if you show natural gum before having the treatment, you are likely to have to have pink gum visible on the bridge to create a natural effect.

Your dentist will repeat any stages necessary to make adjustments and you will have the opportunity to approve the bridge before it is sent to the technician to be finished. A signature confirming your approval will be needed at this stage. Once finished the bridge cannot be changed except for very minor adjustments to the bite at the time of the fitting.

Please Note: It is important for patients to know that once the bridge has been approved and finished it cannot be changed without them incurring significant costs. Even relatively minor changes can require the removal of all of the teeth and gum from the bridge. Please take whatever time you need to approve the final fitting, and bring a trusted friend or partner if necessary to help you sign the bridge off for completion.

The day of surgery – what can I expect?

The day of surgery is a big day for you and for the team gathered together to see the treatment through to a successful conclusion. The surgery is booked out for the day and we have a technician in attendance throughout, and for much of the time you will be resting while the bridge is prepared ready for fitting.

You will be given an appointment time for the beginning of the day and once in the practice we will run through the procedure with you and check that you understand and consent to the treatment. You will also be given some medication to ward off any possible infection depending on what you are able to take, usually in the form of a drink.

Once started the surgery usually takes about 2 hours. The procedure involves getting you nice and numb, and if you are having sedation getting that started before the surgery begins. We start by removing any remaining teeth and lifting the gum aside out of harms way. The bone is then smoothed and prepared for the implants to go in.

The implants are placed and tightened into position by hand, and fitted with small caps. The gum is then closed around the implants and impressions taken. You are then free to relax and rest while the technician adapts the prepared work to fit the actual position of the implants. Some time around mid afternoon the work should be ready to fit. The small caps are removed and the bridge screwed into place. Once the bite is checked you are free to leave.

Some patients are happy to drive home themselves but we would suggest if possible that you arrange for someone to call to take you home.

Preparing for the surgery day

Smoking

If you smoke please try to stop 6 weeks before and 28 days after surgery. Smoking affects the healing process and can lead to an increase in the implant failure rate. Smoking used to be considered a direct contra-indication for implant treatment, but we are less strict nowadays, but only on the understanding that patients who smoke risk implant failure and that the longevity of the implants is likely to be affected. If you are considering stopping smoking this is the perfect time to start.

Food and drink

For 4-5 days before surgery please eat normally but you should avoid grapefruit products, especially grapefruit juice, as this can interfere with metabolism of drugs.

For at least 24 hours before surgery please do NOT consume alcohol.

On the day of the surgery please have a good breakfast unless you are having sedation, but avoid caffeine (coffee, tea, cola) and dairy products (milk, yoghurt, cream).

If you are having sedation you must not eat at all.

If you are a diabetic, please have a piece of toast before attending for your surgery appointment.

Medications

On the day of surgery, take any regular medication (e.g. for blood pressure or for diabetes), unless otherwise instructed.

If you can use Corsodyl mouthwash up to the day of surgery there is some evidence that this reduces the risk of infection.

Clothing

On the day of surgery, wear comfortable short-sleeved clothing. If you are cold during the procedure, we will provide you with a blanket.

Do not wear any makeup or face creams, and gentlemen should be clean-shaven if possible.

Care and Maintenance

The importance of proper aftercare and maintenance cannot be over stressed if you are to have a long-lasting, successful bridge. Implants, like teeth, need to be cleaned properly and checked by your dentist on a regular basis to ensure that everything is healthy. Although implants don’t suffer from gum disease in the same way as teeth, if hygiene is poor inflammation can occur and give rise to bone loss around the implant. In extreme cases the bone loss can be so extensive as to cause the implant to loosen and fall out.

During the preparation for your new bridge you will have received instruction on new oral hygiene measures designed to secure and maintain healthy bone around your implants. It is important to maintain this high level of hygiene, and regular check-ups with your dentist will allow this to be checked and if found wanting further treatment can be provided.

Patients with a history of gum disease or those that continue to smoke are at increased risk of early failure of implants, and there are also general conditions, such as diabetes, which can also affect the reaction to plaque and calculus seen with poor levels of hygiene.

Your dentist can monitor and advise accordingly, and provide early remedial treatment if routine home care is not proving sufficient to keep problems at bay.

Bruxism

Bruxism is the clinical term used to describe grinding of the teeth, which usually happens during sleep and is outside of anyone's control. Most people grind their teeth some of the time, and this is also true after implant placement and affects All on 4 bridges in particular. A severe grinding habit with natural teeth rubbing against the bridge can cause rapid wear or fracture of the bridge. In these cases your dentist will recommend the use of a night guard to protect the bridge while you are asleep.

Unfortunately we are unable to offer our usual guarantees against breakages if night guards are recommended and not worn.

Advantages and disadvantages of implants – general considerations

Advantages

Dental implant surgery can offer a number of functional and aesthetic benefits to patients who have severely damaged or missing teeth. Implants can be thought of as replacement tooth roots and can be placed in the upper and/or lower arches of the mouth. Implants provide a solid foundation for either permanent, fixed replacement teeth (individual crowns through to All-on-4™ bridges) or removable teeth (Implant retained dentures).

Implants can look and function just like your own teeth. Most restorations are either made of porcelain or high quality acrylic, which mimics the colour, shade and light-reflecting qualities of natural teeth, so they blend in. Because implants fuse with the bone, they become permanently fixed, and can feel as comfortable as natural teeth, with no discomfort or soreness from, say, slipping dentures.

Implants function in the same way as natural teeth. This means you can eat any type of food you like – with confidence and without pain – including foods that are hard, like apples, or difficult to chew, like crusty bread or steak. Implants also improve your 'bite' (i.e. the action of the jaws opening and closing), meaning your new teeth can bite and chew food just like normal teeth.

Implants can benefit you if you're having difficulty speaking clearly or feel self-conscious when talking as a result of missing teeth or loose-fitting dentures, since they are fixed in place and won't slip or move.

When a tooth is lost, both the bone tissue and gums can begin to deteriorate due to disuse. Because Implants are integrated into the jaw, this helps to prevent or reduce bone loss and gum recession, since the pressure of chewing stimulates the underlying bone, triggering growth of new bone tissue, thereby strengthening the jaw.

Implants are permanently fixed in place, so you don't have to remove them for cleaning, take them out at night or worry about them moving, becoming loose or falling out. So, with one or two additional cleaning methods, which you will be shown you can clean your new implant-supported teeth as easily as natural teeth.

Implants are strong and durable and can last for many years, even up to a lifetime, if cared for properly. The bridge may become worn down after 10 to 15 years, but these can be replaced without the need for further surgery or new implants.

DISADVANTAGES

Implant surgery has a clinical success rate of around 95%, however no surgical procedure is without inherent risks, side effects and possible complications.
A period of healing is needed before the final, permanent restoration can be fitted, up to 6 months in most cases.

Fracture of acrylic or porcelain crowns sometimes used All-on-4 bridges is more prevalent than on natural teeth due to a lack of shock absorbency between the implants and the jawbone.

Implants may work out more expensive than alternative treatments.

Replacement of failed implants

Dental Implant treatment outcomes cannot be guaranteed. We do, however, undertake to replace free-of-charge within the first 2 years after placement any implant fixture we have fitted, in the unlikely event that it fails to integrate in the jawbone. We also undertake to repair free-of-charge any crown or bridge we have fitted to an implant fixture provided by us that fractures within 12 months of being fitted. These are not money-back guarantees and do not cover trauma or neglect.

These undertakings are subject to your compliance with the highest standards of home care and oral hygiene and regular attendance for check-ups, hygiene appointments, wearing of night guards and regular reviews. Failure to do so will render our undertakings void. Please read the notes below.

Significant contributing factors to the failure of Implants are:

Tobacco smoking reduces blood supply to the oral and bone tissues, hence the higher failure rate among heavy smokers. If you are a smoker, you must be aware of this, and you must refrain from smoking for at least **6 weeks before** Implant surgery and **28 days after**.

Alcohol reduces the resistance of tissues to trauma, causing tissue dehydration and delayed healing. Therefore, you must refrain from drinking alcohol for at least **24 hours before** surgery and **3 days after**.

Neglected oral hygiene leads to the increased likelihood of failure, as surgery sites can easily become infected with plaque bacteria.

These undertakings do not cover failure due to any of the factors mentioned above and do not include failure due to illness, misuse or trauma.

Restorative options

The most popular type of full arch implant bridge worldwide is an acrylic bridge carrying acrylic teeth. These look and feel good, and offer favourable wear characteristics when opposed to remaining natural teeth.

Although 99% of our patients chose acrylic titanium bridgework for their final materials, we also have ceramic or composite definitive bridgework options available, which are usually only used in the upper jaw.

The ceramic option consists of the same computer designed and manufactured titanium bridge framework but with individually cemented all ceramic crowns placed on top.

We advise you to use the acrylic bridgework in your prototype phase as a test run and decide if you wish the alternative same day smiles ceramic option after the 6-month healing time. Please feel free to ask for more information, but this option does **add considerable cost** to the restoration.

Additional Procedures

Sometimes additional bone grafting and gum grafting procedures will be necessary before implants can be placed and these will be charged at the appropriate fee. If these are anticipated you will be advised in advance. If the need for these arises at the time of surgery this will be discussed with you at the time.

Removable Bridge (Marius bridge)

In some rare cases we may decide with you that the best result in your case will be a removable bridge (‘Marius bridge’) rather than a fixed one, although this is very unusual. This will be discussed with you before commencement of treatment if it is relevant in your case.

Changes in Sensation

The provision of implants is a surgical technique, which, by necessity, involves some disruption of the soft and hard tissues. Sometimes after surgery you may notice a change in sensation to these tissues. These changes are usually transient and they return to normal in time. This can occur because the surgical site is in the vicinity of the nerves that supply sensation to the lip, gums, tongue and teeth.

Nerve Damage

There is always a very small risk that a nerve will be damaged either temporarily or permanently giving disturbance or loss of sensation to the affected areas. With detailed assessment, planning and careful surgery this is extremely unusual but you should be aware that it is a possibility that may happen to you.

Swelling, bruising and discomfort

Swelling, bruising, pain and infection are all possible side effects of surgical procedures. You should be aware that implant placement is a surgical procedure and, even when carried out without complications, some post-operative swelling and bruising is to be expected. Swelling and bruising will be worst at 48 hours post-operatively and can take on

average 10-14 days to resolve provided there are no further complications such as infection. We will provide you with pre and post-operative medication and instructions to limit the extent of these side effects.

Bleeding

Bleeding may occur after surgery but this can usually be resolved by applying pressure with a gauze pack or clean handkerchief for 20 minutes. You will be given specific post-operative instructions giving details of who to contact if you have problems.