Treatment of proptosis in the stable phase of Graves’ orbitopathy differs significantly from that in the acute inflammatory phase. The treatment paradigm employed at the Harkness Eye Institute, reserves surgical decompression in the acute phase for those cases of optic neuropathy that fail to respond to orbital radiotherapy or when radiotherapy is contraindicated. Owing to the 90% success rate of orbital radiotherapy, stable phase orbital decompressions are most commonly performed to relieve exposure keratitis, spontaneous globe prolapse and disfigurement. As a consequence, our tolerance for adverse effects resulting from the surgery is low. In an effort to limit the surgical complications, we have adopted a graded approach to orbital decompression. The approach tailors the decompressive procedure to the clinical findings and radiographic analysis of the orbital anatomy. Tailoring surgery to the individual patient’s orbital anatomy rather than performing a uniform operation on all patients we believe results in more consistent outcomes. To understand how this approach fits into the evolution of orbital decompressive surgery it is valuable to review the interval milestones upon which it is based.

**ORBITAL DECOMPRESSION**

The concepts of orbital decompression surgery have evolved rapidly over the past twenty-five years. The goal of decompression has always been the restoration of the normal relationship between the orbital bony and soft-tissue volume, which is disturbed by the pathologic expansion of the extraocular muscle and orbital fat compartment. The traditional surgical approach has focused on expanding the bony dimensions of the orbit, neglecting a consideration of the orbital soft tissues. The approach may appear intuitively backward as the orbital pathology routinely affects the soft-tissues and spares the orbital bones. However, the surgical procedures were developed at a time when the innovators possessed vastly greater experience operating upon the orbital bones and little to no experience operating in the orbital soft-tissue spaces. The more recent development of high-resolution, non-invasive imaging and a more detailed understanding of orbital soft-tissue anatomy from the work of Koornneef have laid the ground work for a more refined approach to orbital decompression. Prior to the development of CT imaging clinicians depended upon plain-film radiographs and orbital tomograms for the sole non-invasive view of the orbit. In rare cases, arteriograms and venograms provided details of the vascular anatomy. However these modalities provided little additional information except in the unusual cases of coexisting vascular pathology. It was not until 1975 with the introduction of computerized tomography that clinicians were able to study orbital soft-tissue anatomy in detail without the need for exploratory surgery. The enthusiasm for the initial images that were produced led to a number of generalizations regarding the pathophysiology of Graves’ orbitopathy that we labor under today despite the much greater resolution provided by modern generation high-resolution CT and MR imagers. While many of the early conclusions hold true for the average patient, careful radiographic analysis reveals a remarkably inhomogeneous population of patients that may be difficult to differentiate on clinical grounds alone.

The second significant advance is the detailed orbital dissections that reveal the complexities of the orbital soft-tissue compartments and anatomic relationships between the soft-tissue components that must be understood to produce high success rates while minimizing complications.

Armed with only plain film radiographs that revealed shadows of the orbital bones and only rudimentary details of the orbital soft-tissues surgeons naturally turned to the removal of one or more of the orbital bones to restore more normal orbital volume relationships. The choice of bone to be removed was initially based on the training of the surgeon and not on any clear understanding of the effect that the bone removal would have on the improvement in the signs and symptoms of the disease. The first description of orbital bony decompression was through a neurosurgical approach removing the orbital roof. While still utilized in some centers to treat those cases of compressive optic neuropathy that have failed all other forms of decompression. The procedure is otherwise rarely performed due to the risks of an intracranial procedure, limited resolution of proptosis and high rate of pulsatile proptosis that results from removal of large segments of bone separating the orbital and intracranial compartments. More recent and still useful procedures were developed to remove the infra-medial orbit and the lateral orbital wall. Since the early descriptions of bone decompression procedures there has been a series of reports of procedures that remove orbital bones in a variety of combinations through multiple approaches. Each surgical approach has its relative advantages and disadvantages. Most surgeons favor a limited number of procedures that have been effective in their experience. While we appreciate the value of limiting the variety of surgical procedures that a surgeon performs in order to gain confidence with one operation, we feel that the population of patients suffering from Graves’ orbitopathy is sufficiently inhomogeneous to appreciate even greater benefit from a highly individualized approach to decompression. Based on this premise we have developed a graded approach to orbital decompression.

**GRADED ORBITAL DECOMPRESSION**

The Graded orbital decompression was developed to reestablish a normal relationship between orbital soft-tissue to bony volume, preserve or restore normal ocular function and limit the rate of complications. The choice of decompressive procedure is tailored to each case and based on careful clinical examination and radiographic analysis.
Patients in the acute phase of the disease without compressive optic neuropathy are generally supported medically until the inflammatory signs of ongoing immunologic disease have remitted. In cases of active orbitopathy and optic neuropathy, radiotherapy and corticosteroids are offered first, unless contraindicated, to reverse the optic neuropathy and hasten the resolution of the acute phase of the disease. In the stable phase of the disease we have identified five principles of surgical decompression that form the basis of the graded approach to decompression.

1. Orbital fat decompression is associated with fewer complications than bone decompression.
2. Either fat decompression or each single orbital wall removed produces an average of 3-4 mm of proptosis reduction.
3. The removal of orbital fat in addition to orbital bones produces an additive effect on proptosis reduction.
4. The fewer orbital walls removed the lower the resulting rate of complications.
5. The complication rate resulting from bone decompression is determined by which wall is removed. The orbital roof is most likely to produce significant complications followed by the floor, the medial wall and least likely the lateral wall.

Based on this premise we currently employ the following surgical algorithm which defines the Graded orbital decompression. If analysis of the CT or MRI data demonstrates expansion of the orbital fat compartment a fat decompression is performed. If there is asymmetrical proptosis, greater than 2mm, a bilateral fat decompression is performed augmented by an extended lateral wall decompression in the orbit with the greater degree of proptosis. If optic neuropathy is present (despite radiotherapy or when contraindicated), significant enlargement of the rectus muscles is identified by scan or residual proptosis exists after fat decompression a simultaneous medial and lateral decompression is performed. Orbital floor decompression is reserved for proptosis in the range of 32-35mm. In the rare cases of profound proptosis measuring >35mm or cases in which medical or surgical decompression have failed to result in a reversal of optic neuropathy consideration is given to a roof decompression.

It is important to emphasize that these represent guidelines. While more refined than any approach that depends upon one or two surgical procedure, careful clinical and radiographic analysis is essential. The goal is to choose the appropriate operation or combination of operations best suited to the individual patient. We feel sufficiently confident with this approach that we would prefer to produce a small percentage of under corrections that require subsequent more extensive decompressive procedures than produce over corrections which can be more difficult to rectify.

ORBITAL FAT DECOMPRESSION

Orbital fat decompression is indicated for patients with proptosis that results from expansion of the orbital fat compartment. Careful review of preoperative orbital imaging (CT or MRI) will help to exclude from consideration those patients with predominant enlargement of the rectus muscles. In the latter case, the relative contribution of the orbital fat compartment volume will be small and fat decompression will provide less than average decompressive effect. Compared to a cosmetic blepharoplasty fat is removed in far greater volume and more deeply from the orbit, beyond the equator of the globe. The extent of the dissection routinely requires general anesthesia and we prefer to monitor the patients in the hospital the night after surgery for the development of orbital hemorrhage. We have performed more than 380 orbital fat decompressions. The average decompressive effect varies based on the preoperative Hertel measurements. For patients with Hertel measurements of 25 mm or greater the average reduction in proptosis is 4 mm. We have appreciated as much as 6-mm regression in proptosis in those patients with relatively large orbital fat compartments. When the preoperative proptosis measures less than 25 mm the postoperative improvement averages 3mm.

There are three fat compartments in the inferior and two in the superior extraconal space of the orbit. To maximize the effect of the procedure, both intra and extraconal fat must be removed. The greatest volume of fat is removed from the infra-temporal orbit. We therefore routinely perform the decompression in the inferior orbit. When there is added decompressive effect desired or clinically apparent prolapse of orbital fat superiorly, a superior decompression is performed. In the superior orbit the majority of the extra- and intraconal fat is removed from the nasal quadrant. Centrally there is little fat and temporally the lacrimal gland bars easy access to the lateral fat compartment.

In our series complications have been limited to 5 cases of new or worsened diplopia. Three cases improved spontaneously. The others required strabismus surgery. Two patients developed an Aides pupil. Potential risks include significant orbital hemorrhage and routine postoperative diplopia. The latter is less common if tenons sheath surrounding the muscle belly is preserved. There have been no over corrections. We have had only one case in which we felt that, due to the ease with which large volumes of fat were removed, the potential for over correction of the proptosis existed.

A relative contraindication to the procedure is the existence of compressive optic neuropathy. In the presence of swollen extraocular muscles producing radiographic evidence of apical orbital crowding with obliteration of the peri-optic fat, there is little anticipated benefit to be derived from fat removal. We have however treated four patients with compressive optic neuropathy and radiographic evidence of small to only slightly enlarged rectus muscles. In these cases orbital fat decompression was performed with restoration of normal optic nerve function. The cases and results of the surgery provoke consideration of the mechanism of dysthyroid optic neuropathy and suggest a degree of inhomogeneity of the population of patients in this subgroup.

PROCEDURE

Orbital fat decompression may be accomplished through a variety of surgical approaches. The two most commonly utilized are the transconjunctival lower lid and the upper lid crease incisions. Alternatively, the inferior orbital fat may be approached through a transcutaneous,
Orbital fat decompression is performed under general anesthesia. Intraoperatively the patients receive intravenous antibiotics and corticosteroids. These are continued for three postoperative doses of antibiotics and 5-7 days of corticosteroids depending on the amount of postoperative swelling. Since fat is to be removed from the intra- and extra-conal spaces, it is appreciated for the location of the extraocular muscles must be maintained throughout the procedure. It may be of benefit when first performing the procedure to apply traction to the insertion of the muscle to locate them during deep dissection. As an alternative, 4-0 silk traction sutures may be placed beneath the muscle bellies to facilitate the identification of the muscles.

Debulking of the orbital fat is always performed through the lower lid, where in general the most abundant fat volume is accessible. When clinically apparent as prominence of the supra-nasal fat pad, or if more significant amounts of proptosis exist then an upper lid approach is indicated.

A transconjunctival approach is routinely taken to the lower eyelid. However, if the eyelid is tightly opposed to the globe, as is often the case when the proptosis is significant or in younger patients with tight eyelids, a lateral canthotomy and inferior cantholysis provides greater access to the lateral orbital compartment. The conjunctival incision is made approximately 5 mm inferior to the inferior border of the tarsal plate. Rake retractors are used to reflect the lid margin and tarsal plate anteriorly. A 4-0 silk suture is placed through the conjunctiva and adherent lower eyelid retractors to reflect them superiorly and simplify identification of the underlying orbital septum. The septum is opened with bovie cautery and the three fat pads identified. The nasal fat pad is isolated first. Using primarily blunt dissection with Q-tips and then sharp dissection with bovie cautery the extraconal fat is advanced anteriorly with gentle traction. Malleable retractors are placed into the wound to shield the lacrimal sac, eyelid and globe. As the intermuscular septations and surrounding scar tissue are divided with the bovie more of the intraconal fat is easily advanced. Approximately 2-3 cc of fat can be removed from this quadrant. The central fat pad is addressed next. There is little fat volume in this space routinely and only extraconal fat can be excised. Only excessive amounts of prolapsing fat should be removed from this space as there is little effect on the globe position and a hollowed-out appearance of the lower eyelid contour may result. The inferior oblique muscle travels through this space and should be identified.

Finally the infer-temporal space is debulked. The largest volume of at can be retrieved from this quadrant. The anatomic boundaries to the removal of fat are the lateral orbital wall, the lateral rectus superiorly, the inferior rectus medially and the globe supra-nasally. The intraconal fat is removed as described above with the aid of a malleable retractor protecting the globe and the lower eyelid. Approximately 3-4 cc of fat can be removed from this quadrant.

In each quadrant, as fat is removed with the bovie cautery, care is taken to assure hemostasis. Periodic irrigation with a saline solution reduces heat build up from cauteration. The conjunctiva is closed with two absorbable sutures. If a canthotomy/canthyolysis has been performed the canthal tendon is repaired.

If further fat volume is to be removed from the superior aspect of the orbit we routinely confine the dissection to the supra-nasal quadrant. This region yields the greatest volume of fat and avoids provoking postoperative lid retraction that occurs in Graves’ patients due to excessive fibroblast activity producing adhesions of the levator aponeurosis to the orbital rim. The temporal third of the upper lid is occupied by the lacrimal gland and not productive of fat given the routine approach. The nasal fat pad is accessed through a lid crease incision. A silk traction suture through the lid margin improves exposure. The orbital septum is opened bluntly and the orbital fat dissected with Q-tips from the surrounding tissues. The trochlea, superior ophthalmic vein and supra trochlear nerve occupies this quadrant. The trochlea is palpated and a malleable retractor placed supratemporal to it to avoid injury. The superior ophthalmic vein can often be gently dissected from the surrounding fat. If possible efforts should be made to preserve the vein as this will limit postoperative orbital congestion. The terminal branches of the supratrochlear nerve are often sacrificed as part of the fat resection. Sensation in the supra-nasal quadrant routinely returns within 6-9 months. Dissection of fat in this quadrant routinely yields 2-3 cc of fat. After hemostasis is assured the skin is closed.

Patients are admitted for postoperative observation for orbital hemorrhage and ice packs are applied for 48 hours after surgery. Skin sutures are removed at 5-7 days postoperatively. The full effect of the removal of orbital fat is generally appreciated at 3-4 months after surgery.

**LATERAL ORBITAL DECOMPRESSION**

The traditional lateral orbital decompression is a modification of the surgical approach used to enter the intraorbital compartment. As originally described the procedure removed a relatively small amount of the lateral orbital wall. This included most typically the zygomatic bone and spared the orbital rim and the sphenoid bone. Modifications of the procedure have included sacrificing the orbital rim and the anterior advancement of the rim in a fashion after the craniofacial procedures. Despite these maneuvers the lateral decompression failed to provide sufficient relief of proptosis until Goldberg appreciated the contribution of the sphenoid bone to the posterior orbital bony dimensions. They analyzed skull specimens and CT scans and concluded that the greater wing of the sphenoid and the centrally located bone marrow space constituted a substantial bone volume and that the removal of this segment of bone would result in a significant reduction of proptosis. They have favored the bicoronal approach to the decompression through which they can operate on both the medial and lateral orbital walls. While we appreciate the facility of this approach we have preferred more direct approach to the lateral orbital decompression. We have not routinely utilized the bicoronal approach because of the extensive incision, and dissection required. The approach also risks injury to branches of the facial nerve and frequently results in prolonged edema and wasting of the Temporalis muscle. We prefer either an extended lateral canthotomy incision or as we currently most commonly perform, an internal orbital contouring through a canthotomy and canthyolysis.
when combined with an orbital fat decompression or medial endoscopic decompression. The latter procedure was developed as a logical extension of the orbital fat decompression procedure to achieve 2-3 mm of additional proptosis reduction without significant increase in surgical morbidity. It is indicated for patients with asymmetric proptosis or Hertel measurements of approximately 28 mm or greater. This group of patients hopes to achieve a restoration of appearance or symmetry beyond that which might be anticipated with an orbital fat decompression alone. The procedure has the advantage of a limited external incision and no increase in postoperative recuperation.

**OPERATIVE PROCEDURE:**

**Lateral Orbital Decompression**

The lateral orbital decompression is performed routinely under general anesthesia. The patient receives intravenous corticosteroids and antibiotics. An extended lateral canthotomy incision is marked for approximately 5-10 mm in length and injection of 1% Xylocaine with epinephrine instilled at the site of the canthotomy, into the plane of the temporalis fascia and deeply into the temporalis fossa. A scleral shell is placed over the globe. For intraoperative reference a 4-0 silk traction suture is passed beneath the lateral rectus muscle. A skin incision is made with a #15 blade. A canthotomy and superior and inferior cantholysis performed with curved Stephens scissors. The temporalis fascia is exposed bluntly and widely with Metzenbaum scissors. The lateral orbital peristome is incised and two relaxing incisions made in the adjacent temporalis fascia. The temporalis muscle is reflected laterally from its attachments to the lateral orbital wall with bovie cautery. The orbital periosteum is reflecting from the lateral orbital wall gently with a blunt freer elevator. Attention should be paid to the perforating zygomatico-facial neurovascular bundle, which should be cauterezied prior to division. Malleable retractors are placed on the orbital and temporalis sides of the lateral orbital bone, and an oscillating saw used to make osteotomies of the superior and inferior aspects of the lateral orbit. The osteotomies should extend to the spheno-zygomatic suture. A rongeur is used to remove the osteotomized segment of bone. The remnant of zygoma in the osteotomized segment is drilled to leave only a thin orbital rim to ultimately be reattached at the conclusion of the procedure. The most critical bone to be removed is the sphenoid. This is removed with a combination of rongeur and drill. The lateral bone marrow space is encountered and is generally highly vascular. Judicious use of bone wax is often helpful. The limit to the posterior removal of the sphenoid should be at the point at which the sphenoid becomes flat horizontally. This landmark conserves sufficient thickness of the sphenoid bone to avoid intracranial dissection. The periorbita should be left intact if there is sufficient orbital compliance (as measured by resistance to retropulsion of the globe) to predict regression of proptosis or if postoperative diplopia is absolutely to be avoided. If the goal of surgery is to maximize the decompressive effect then the periorbita should be opened and the orbital fat gently teased into the temporalis fossa and excised with bovie cautery. The periorbita is best incised in an anterior to posterior direction parallel to the lateral rectus muscle. Traction applied to the silk suture beneath the lateral rectus muscle causes plication of tenons capsule surrounding the muscle. The incision in peristome should provide a margin of 3-5 mm to avoid injury to tenons capsule.

The wound is irrigated, active bleeding stopped, and the orbital rim replaced. In general, the rim is restored to its original location. This is accomplished most simply with a 3-0 silk suture. Wires or fixation plates are not required to produce a bony union if the periosteum is closed over the anterior surface of the rim. In more severe cases of proptosis the procedure may be modified by eliminating the orbital rim or rotating the segment anteriorly and nasally. The later procedure requires rigid fixation and modification of the cut ends of the osteotomized segment to eliminate the sharp edges. We have appreciated limited advantage to this modification and have been troubled by resulting canthal distortion.

The cut ends of the lateral canthal angle are reapproximated to each other and to the periosteum. The small associated skin wound is closed with non-absorbable monofilament. We do not advise the use of percutaneous drains. We utilize a pressure patch until the patient has completed bed transfers. The patch is removed and patient observed overnight in hospital for the development of hemorrhage. If a hemorrhage develops the patient is returned to the operating room for evacuation and control of the bleeding source.

**INTERNAL ORBITAL CONTOURING**

Internal orbital contouring may be performed in addition to orbital fat decompression or medial endoscopic decompression. The infra-lateral fat decompression incision is modified to provide greater access to the lateral orbital wall for contouring. The procedure is routinely performed under general anesthesia. The patients receive intravenous corticosteroids and antibiotics. The lateral canthal angle is injected with 1% Xylocaine with epinephrine 1:200,000. A scleral shell is placed to protect the globe. A lateral canthotomy is performed with a #15 blade. An inferior and superior cantholysis is then performed with Stephens scissors. The inferior palpebral conjunctiva is incised 2 mm inferior to the inferior tarsal border with cautery. The lower eyelid retractors are divided with cautery and the orbital septum opened. The orbital fat decompression is then performed in the fashion described above. The removal of orbital fat helps to provide increased access to and visualization of the lateral orbital wall from an internal approach. After completion of the orbital fat decompression, the lateral orbital peristome is incised vertically. A freer-elevator is used to elevate the orbital peristome. The perforating zygomato-facial neurovascular bundle is identified and cauterized with bipolar cautery and divided. The spheno-zygomatic suture is identified, as is the reflection of the peristome in the infraorbital fissure. A malleable retractor is placed to reflect the orbital tissues nasally. Rake retractors reflect the lids. A guarded pineapple drill is then used to remove the lateral orbital bone. The extents of the removal are similar to that achieved by the external approach. The orbital rim is preserved anteriorly. Posteriorly the bone marrow space of the sphenoid bone is removed. It is this bone removal that provides the most
substantial volume expansion of the orbit from the lateral approach. Bleeding can be brisk and if not controlled with bone wax or a diamond drill, the orbital rim can be removed to provide for easier access. After removal of the bone, the periosteum is closed. The cut ends of the canthal tendons are reapproximated and sutured to the periosteum and the skin wounds closed.

MEDIAL ORBITAL DECOMPRESSION

The medial orbital decompression is one of three approaches that effectively decompresses the orbital apex. We prefer to employ the medial orbital decompression as the initial procedure when attempting relieve compressive optic neuropathy due to apical orbital decompression. The mechanism of optic neuropathy in Graves orbitopathy is debated, however it is likely that the majority of cases result from direct or indirect pressure delivered to the optic nerve the result of pathologically enlarged extraocular muscles. The exceptional cases of optic neuropathy occur despite relatively normal extraocular muscle volume. The identification and treatment of such cases is described in the section on orbital fat decompression. The second indication for medial wall decompression is the patient who has undergone orbital fat decompression with inadequate resolution of proptosis or who is not a candidate for orbital fat decompression due to the relatively greater contribution of enlarged rectus muscle volume as compared to a relatively small or normal orbital fat volume.

In all of these cases we favor a combined medial and lateral decompression performed at the same surgical setting. We believe that balanced approach to the horizontal decompression of the orbit is less likely to result in imbalance of the medial and lateral rectus muscles and produce postoperative diplopia13. Evidence for the validity of this approach is found in the postoperative scans of patients who have undergone medial wall decompression for optic neuropathy and suffered profound limitation of abduction postoperatively. In such cases the medial rectus muscle and associated orbital soft-tissues are preferentially displaced medially. Patients who have undergone balanced medial and lateral decompressions demonstrate a more equal prolapse of soft tissues into the surrounding bone defects. At the present time however this concept, while logical and one that we advocate, has yet to be proven in a significant numbers of patients.

Another area of controversy is the advisability of bilateral decompressions performed at the same surgical setting. The concern has been the rare but catastrophic risk of bilateral irreversible blindness attendant to extensive apical orbital decompressions. We believe that the risk of loss of vision following orbital decompression is greatest among patients who suffer from active orbital inflammation and the risk is increased still further if optic neuropathy is present. In such cases we advise that decompression be performed unilaterally and from 3-7 days apart. We believe the risk of blindness to be far lower in patients without evidence of acute inflammation and normal optic nerve function. In such cases we advise the patient of the inherent risk of the procedure and will perform the procedure on each orbit on one or two separate days to suit the patients wishes. The traditional approach to the medial wall of the orbit is transcutaneous. This approach produces a small but noticeable scar, and suffers from the lack of excellent visibility at the apical extent of the dissection. The trans-caruncle approach23 eliminates the skin incision but can be at least equally difficult to achieve good visibility at the orbital apex especially in a congested and swollen orbit. The procedure that provides the greatest degree of visibility and control of the operative field is the endoscopic medial decompression when performed by an experienced functional endoscopic surgeon24,25. Currently we have come to favor the trans nasal endoscopic approach for most of the medial decompressions. In cases where direct orbital exposure is required a standard Lynch or transcaruncular approach is performed.

ENDOSCOPIC ORBITAL DECOMPRESSION

Procedure

Endoscopic orbital decompression is performed under general anesthesia. The patient receives intravenous antibiotics and corticosteroids. The nasal mucosa is first injected with 1% Xylocaine with epinephrine 1:100,000 and then packed with topical cocaine 4% solution to promote vasoconstriction. A 4-0 silk suture is passed beneath the belly of the medial rectus muscle to aid in its visualization during the procedure. In cases when a balanced medial and lateral decompression is planned, the medial decompression is performed first. This provides additional orbital space to perform the lateral decompression from an internal approach. When required, a nasal septoplasty is performed. The middle turbinate is medialized and the ethmoidectomy is performed from anterior to posterior. In cases of orbital apex compression the decompression is extended to the anterior most aspect of the optic canal. When the decompression is performed solely to relieve proptosis the apex of the orbit is not decompressed. The medial orbital wall is removed piecemeal exposing the periorbita. The bone removal laterally (i.e. the floor of the orbit) is determined by the amount of proptosis reduction that is desired and the presence of preoperative diplopia. Maintenance of the infra nasal strut of bone reduces the risk of postoperative diplopia but also limits the decompressive effect. Bone of the floor of the orbit including and lateral to the infraorbital nerve is always preserved. The periorbita is opened in most cases. This maneuver has the effect of increasing the likelihood of postoperative diplopia but also improves the decompressive results27. Traction on the 4-0 silk suture causes the periorbita to dimple at the superior and inferior borders of the medial rectus muscle. A sickle blade is used to incise the periorbita parallel to the muscle above and below the indentation. Orbital fat is gently teased out between the incision s in the periorbita. The globe is palpated to demonstrate the decompressive effect. Hemostasis is assured and the nose is generally packed with Merocel sponges.
References