CHAPTER 7

Orbital Surgery

Highlights

- The orbit is divided into 5 surgical spaces: subperiosteal, extraconal, sub-Tenon, subarachnoid, and intraconal.
- The type of surgical approach to the orbit is based on the location of the pathology. A good understanding of orbital anatomy enables an appropriate surgical plan that minimizes morbidity.
- Orbital decompression surgery is performed in cases of thyroid eye disease to address compressive optic neuropathy, disfiguring proptosis, or corneal exposure.

Surgical Spaces

There are 5 surgical spaces within the orbit (Fig 7-1):

- the *subperiosteal surgical space*, which is the potential space between the bone and the periorbita (periosteum of the orbit)
- the *extraconal surgical space*, which lies between the periorbita and the muscle cone

![Image of orbital surgical spaces](image-url)

*Figure 7-1* Surgical spaces of the orbit. A, Axial view. B, Coronal view. *Illustration by Cyndie C. H.*
• the sub-Tenon surgical space, which lies between the Tenon capsule and the globe
• the subarachnoid surgical space, which lies between the optic nerve and the nerve sheath
• the intraconal surgical space, which lies within the muscle cone

A single orbital lesion may involve more than 1 surgical space, and a combination of approaches may be necessary for pathologic processes affecting the orbit. An operating microscope is sometimes used, particularly for dissection inside the muscle cone. The approaches to these spaces—superior, inferior, medial, and lateral—are discussed in the following sections. Incisions used to reach these surgical spaces are shown in Figure 7-2.

Orbitotomy

Superior Approach

More orbital lesions are found in the supranoantererior part of the orbit than in any other location. Lesions in this area can usually be accessed through a transcutaneous incision. When this approach is used, care must be taken to avoid damaging the levator muscle, superior oblique muscle, trochlea, lacrimal gland, and sensory nerves and vessels entering or exiting the orbit along the superior orbital rim.

Transcutaneous incisions

A well-hidden incision in the upper eyelid crease provides access to the superior orbital space (Fig 7-3) and offers better cosmesis than an incision placed directly over the superior orbital rim. Both the subperiosteal space and the extraconal space may be approached through this incision. To reach the subperiosteal space, dissection is performed superiorly toward the orbital rim in a plane between the orbicularis oculi muscle and the orbital septum. An