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Regional nerve blocks are useful when tissue distortion from anesthetic volume is to be avoided. They are also useful for patients undergoing more invasive procedures such as dacryocystorhinostomy who are poor candidates for general anesthesia.

Sensory Nerve Blocks

Sensory innervation to the orbit and periocular tissues is provided by the ophthalmic and maxillary divisions of the trigeminal nerve. The ophthalmic division enters the orbit through the superior orbital fissure and has three branches: the lacrimal, frontal, and nasociliary nerves. The maxillary division enters the orbit through the inferior orbital fissure and has two branches: the infraorbital and zygomatic nerves.

Lacrimal Nerve Block

This nerve supplies the lateral aspect of the superior eyelid and the lacrimal gland. To block the lacrimal nerve, 1–2 ml of anesthetic is injected

close to the internal superotemporal orbital wall approximately 2 cm posterior to the orbital rim behind the lacrimal gland (Fig. 7.1).

Frontal Nerve Block

This nerve branches into the supraorbital and supratrochlear nerves. The supraorbital nerve supplies the middle aspect of the superior eyelid, brow, and forehead extending to past the mid-coronal plane. The supratrochlear nerve supplies the medial aspect of the superior eyelid and brow. To block the supraorbital nerve, local anesthetic is injected over the supraorbital notch. It is palpable at the junction of the medial one-third with the lateral two thirds of the superior orbital rim



Fig. 7.1 The lacrimal nerve is blocked by advancing the needle along the superotemporal orbital wall and injecting 1–2 ml of local anesthetic behind the lacrimal gland at a depth of approximately 2.0 cm

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Fig. 7.2 Injection of 1–2 ml of local anesthetic over the supraorbital notch will block the supraorbital nerve



Fig. 7.4 Local anesthetic injection just superior to the medial canthal ligament and along the medial orbital wall to a depth of 1.0 cm will block the infratrochlear nerve



Fig. 7.3 The supratrochlear nerve is blocked with local anesthetic by inserting a needle just above the trochlea to a depth of approximately 1.5 cm

(Fig. 7.2). To block the supratrochlear nerve, the needle is inserted along the superomedial orbital wall just above the trochlea to a depth of 1.5 cm (Fig. 7.3).

Nasociliary Nerve Block

This nerve branches into the posterior and anterior ethmoidal nerves and the infratrochlear nerve. It innervates the lacrimal sac, inner canthus, and lateral aspect of the nose. To block the infratrochlear nerve, the needle is inserted just above the medial canthal ligament along the

medial wall of the orbit to a depth of 1.0 cm (Fig. 7.4). If performing local anesthesia for dacryocystorhinostomy, the anterior ethmoidal nerve with its distal external nasal branch should be blocked using the same procedure but to a depth of 2.0 cm posterior to the anterior lacrimal crest.

Infraorbital Nerve Block

The maxillary nerve courses through the inferior orbital canal, giving off the anterior superior alveolar nerve branch within the canal, which supplies the superior incisors, canines, first molar, and gingiva. As it exits the inferior orbital canal through the infraorbital foramen, it becomes the infraorbital nerve, which supplies the skin and conjunctiva of the inferior eyelid, the cheek overlying the maxilla, the lateral nasal skin and septum, and the superior lip skin and mucosa. To block the infraorbital nerve, local anesthetic is injected over the foramen, which is palpable approximately 1.0 cm below the inferior orbital rim at the junction of the medial one third with the lateral two thirds of the rim. This can be done either percutaneously (Fig. 7.5) or intraorally (Fig. 7.6).



Fig. 7.5 The infraorbital nerve can be blocked percutaneously by direct injection over the infraorbital foramen at the junction of the medial one third and lateral two thirds of the lower lid and 1.0 cm below the orbital rim



Fig. 7.7 The zygomaticofacial nerve can be blocked at the inferotemporal rim inferior to the lateral canthus



Fig. 7.6 Alternatively, the infraorbital nerve can be blocked via an intraoral approach by inserting the needle through the gingiva superior to the canine and aiming toward the infraorbital foramen

Zygomaticofacial Nerve Block

The zygomaticofacial nerve passes along the inferolateral orbit and exits the foramen by the same name to supply the skin of the malar eminence and lateral cheek. The foramen can be located over the inferolateral rim below the lateral canthus and blocked with direct infiltration (Fig. 7.7).