

Ophthalmic instrumentation

Specialized instruments are required for delicate ocular surgery. The American Conference of Veterinary Ophthalmologists (ACVO) asserts that microsurgery of the cornea and intraocular structures should only be performed by or under the supervision of a board-certified ophthalmologist. However, there are surgeries of the ocular adnexa that can be comfortably performed by other qualified veterinarians. This article will describe the minimal instrumentation (an “eye pack”) necessary for a general practitioner to perform these procedures (**Table 1**).

Ophthalmic instruments are typically no larger than a pen or pencil and have been designed solely for wrist or finger manipulation to maximize precision. Extraneous motions, including that of a surgeon’s elbows or shoulders, decrease surgical accuracy. To further limit sway, ophthalmic surgeons tend to remain seated with their forearms resting upon their operating table. Magnifying surgical loupes and brightly-lit surgical fields are also required for most procedures.

Surgical eye pack forceps are used to manipulate adnexal tissues (eyelids, blood vessels and conjunctiva) and to grasp cilia and foreign bodies with precision (**Figure 1**). For adnexal manipulation serrated instruments, such as Brown-Adson tissue forceps, are used to grasp palpebrae and membrana nictitans. Desmarres Chalazion forceps can be used to hold adnexa in place while providing hemostasis. Bishop Harman iris forceps are ideal for manipulation of the conjunctiva, and Hartman Mosquito forceps can be used for hemostasis. Smooth-tipped instruments, such as Jeweler’s forceps or Barraquer cilia forceps, are ideal for grasping cilia or foreign bodies.

Surgical eye packs also include instruments to cut and/or separate ocular adnexa without significant tissue damage (**Figure 2**). For example, scissors grasp and therefore tend to crush tissue as they cut. A scalpel blade will make a cleaner incision and a less damaging cut can then be completed via blunt dissection with a scissors. Typical ocular scissors include Stevens tenotomy scissors with ring handles for thick eyelid dissections, and Stevens tenotomy scissors with spring handles for more delicate procedures. These tissue scissors should not be dulled through nylon or Prolene suturing. Eye packs should also include a No. 3 scalpel handle, a cutting platform established by a Jaeger lid plate, and suture scissors.

Needle holders within surgical eye packs must accommodate a wide-range of needles appropriate for piercing ophthalmic adnexa (**Figure 2**). A Castroviejo needle holder can grasp needles attached to 4-0 to 7-0 sutures and is well-suited for delicate finger manipulation. The stronger but less precise 5” Derf needle holder can also be used to grasp needles attached to 4-0 to 5-0 sutures.

Lid speculums are also necessary in a surgical eye pack (**Figure 2**). An eyelid speculum holds the eyelids apart for access to the eye and conjunctiva. Common eyelid speculums include the Barraquer wire speculum used in cats and in dogs weighing less than 50 kg, and the Castroviejo speculum used for larger dogs and bulldogs.

The cost of surgical eye packs is greatly influenced by the quality of the instruments it contains, and the research and development that went into each instrument’s construction. One must also consider that extensively trained master metallurgists and tradesman hand-craft these instruments from expensive metals with a precision similar to that of fine watchmakers. The initial expense

of high-quality ophthalmic instrumentation is typically offset by their lifetime of valuable service to the practitioner.

If you have any further questions concerning ophthalmic instrumentation, please feel free to consult with a veterinary ophthalmologist.

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Table 1: Eye Pack for Surgery of the Ocular Adnexa

Serrated forceps	Cutting tools
Brown-Adson	Stevens tenotomy scissors with ring handles
Desmarres Chalazion	Stevens tenotomy scissors with spring handles
Bishop Harman iris	No. 3 scalpel handle
Hartman Mosquito	Jaeger lid plate
Smooth forceps	Suturing
Jeweler's	Castroviejo needle holder
Barraquer cilia	Derf needle holder
	Suture scissors
	Eyelid speculum
	Barraquer wire
	Castroviejo

Figure 1. Forceps for Surgery of the Ocular Adnexa

From left to right: (a) serrated forceps: Brown-Adson forceps, Desmarres chalazion, Bishop Harman iris, Hartman Mosquito; and (b) smooth forceps: Jewelers, Barraquer cilia



Figure 2. Cutting and Suturing Instrumentation for Surgery of the Ocular Adnexa

From left to right: (a) cutting tools: Stevens tenotomy scissors with ring handles, Stevens tenotomy scissors with spring handles, No. 3 scalpel handle, Jaeger lid plate; and (b) suturing: Castroviejo needle holder, Derf needle holder, suture scissors

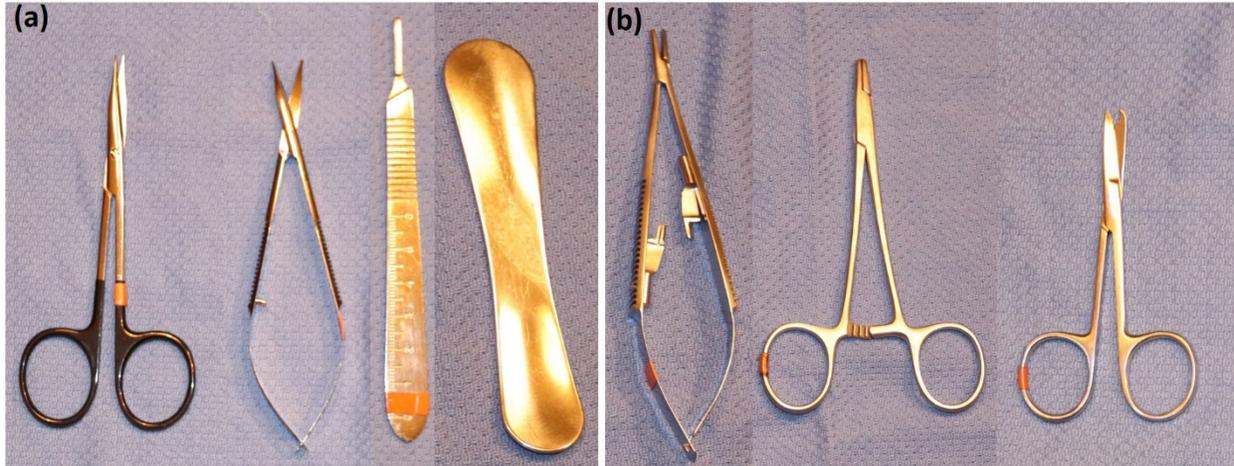


Figure 3. Eyelid Speculum for Surgery of the Ocular Adnexa

From left to right: Barraquer wire, Castroviejo

