2.3.1 Introduction

While playing only limited and indirect role in vision, the sclera is responsible for much of the globe’s strength and integrity. The proximity of the scleral “shell” to vital tissues such as the choroid, ciliary body, and the retina gives it significant clinical implications. Compared with most ocular tissues, the sclera has few pathologies. The limbus is one of the loci minoris resistantiae of the globe, which is further exacerbated by the fact that it is often the site of elective surgical incisions.

2.3.2 Evaluation

Through the usually transparent conjunctiva, it is typically possible to directly inspect the limbus and the anterior sclera with the naked eye, but especially at the slit lamp. Subconjunctival hemorrhage, among other pathologies, however, can interfere with direct inspection of the sclera, making it necessary to use radiological tests (most importantly, CT), ultrasonography, or even exploratory surgery (see Chap. 1.9).

1 e.g., an improperly sutured anterior scleral or limbal wound can cause significant astigma
2 As is the area at the insertion of the extraocular muscles (see Chap. 2.12)
Examining the *posterior* sclera is even more difficult. Taking a thorough history may provide some clues as can a detailed inspection using the slit lamp (see Fig. 2.4.1). Ultrasonography and CT may yield information that otherwise cannot be obtained, but if scleral integrity cannot adequately be confirmed by these diagnostic tests, exploratory surgery becomes necessary.

Areas of thin sclera may be present as a result of current trauma or surgery, past injury, autoimmune disease, or myopia. Extreme caution is necessary to avoid iatrogenic rupture (see below).

### 2.3.3 Specific Conditions

#### 2.3.3.1 Intrascleral FB³

- If the FB is *anterior*, it should carefully be freed and removed. This is relatively easy because access to it is unhindered. The surgeon should know whether the object’s distal end has penetrated the eye (open globe injury; the object is appreciated as an IOFB), and if yes, how deep and what additional injuries may have occurred.
- If the FB is *posterior*, the decision whether and how to remove it becomes more complex.
  - If the FB is relatively easily accessible, a scleral cutdown spares patient and ophthalmologists the risks of intraocular surgery, but if major intraocular damage has also occurred, vitreoretinal surgery, alone or in combination with scleral cutdown, may have to be utilized.
  - If the object is too posterior to allow convenient ab externo access, the object should either be left in situ⁴ or removed from the inside.

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³ An anteriorly located FB usually penetrates the sclera from the outside (i.e., directly). A posterior FB typically traverses the globe first, and also causes intraocular damage.

⁴ Vitrectomy may still be indicated to deal with coexisting intraocular pathologies.