

Spontaneous Extrusion of Intra-Orbital Organic Foreign Bodies

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Intraorbital foreign bodies are a common complication of ocular trauma. The reaction to a retained foreign body varies depending on the chemical composition, sterility and location of the foreign body. They can be classified according to their composition into a) metallic such as steel; b) non-metallic, such as glass; c) organic such as wood or vegetable matter. In general, metallic foreign bodies and glass are well tolerated and if not causing any symptoms or signs, may be left alone, while organic matter like wood and vegetable matters are poorly tolerated, elicits an intense inflammatory reaction and need to be removed urgently [1,2].

The presence of an intra-orbital mass with a discharging sinus should evoke suspicion of a retained organic foreign body [2]. Retained wooden foreign bodies in the orbit may remain quiescent for a long time without causing symptoms or signs, before presenting with delayed onset of complications such as orbital cellulitis, abscess, granuloma and chronic draining sinus [3,4]. They may also present to the Ophthalmologists with spontaneous extrusion and patient may carry in their hands giving history of some trauma months back. The symptoms include swelling of the lids, ptosis, loss of movements and loss of vision [5]. The signs include lid edema and sinus with purulent discharge [6]. Patients can present as esotropia, orbital abscess, optic atrophy, mass in medial canthus [7], proptosis after few weeks of injury. Patients who present late have discharging sinus [8] or orbital cellulitis as the chief presentation [9]. The associated wound may be small and self-sealing. If there is recurrence of symptoms, especially if there is a discharging sinus and granuloma, the possibility of retained foreign body should be considered [10].

Plain x-ray is of no use in diagnosing an intra-orbital wooden foreign body since wood is not seen due to its radiolucent property. B-scan ultrasonography has a very limited role because it does not visualize orbital apex with reliability [11]. CT scan is the standard diagnostic test, because it demonstrates most intra-orbital foreign bodies and is safe in the presence of metallic foreign bodies; however MRI is better at demonstrating wooden foreign bodies. The properties of wood are dissimilar enough from those of the soft tissue to allow differentiation [12]. It is recommended that MRI should be performed after a negative CT scan if

there is a high degree of suspicion of wooden intra-orbital foreign body [8].

Early surgical removal of organic intra-orbital foreign bodies is recommended as they serve as a nidus of infection [4]. However, a review of literature reveals cases of spontaneous extrusion of organic intra-orbital foreign bodies also.

A case report by Sheeja et al. [8] reported the spontaneous extrusion of wooden foreign body after 5 years in a 19 year old male patient who suffered injury to the left eye by palm leaf. On initial presentation, his vision was 20/20, the globe was intact and ocular movements were full. A superficial wound was noted at the left infraorbital margin. There was no evidence of residual foreign body. The patient returned 18 months later with a swelling at the same site. On examination, his vision was still 20/20. There was a non-axial proptosis of the left eye with limitation of elevation. The globe was pushed 3 mm forwards and 2 mm upwards. A 2 × 1 cm firm, non-tender mass was present at the infraorbital margin, the posterior extent of which could not be defined. Computed tomography (CT) scan of the orbit depicted a medium-sized soft tissue density mass in the inferomedial aspect of the left orbit. The mass involved the retrobulbar, intra and extraconal spaces, abutting and slightly displacing the optic nerve superiorly. An incision biopsy of the mass at the infraorbital margin was done. Histopathological examination showed features of chronic inflammation with fibroblastic proliferation; however systemic examination and investigations did not reveal any clinical evidence of tuberculosis or sarcoidosis. As the patient was not very symptomatic at the time, he was kept under observation. He presented two years later with a discharging sinus at the site. At this point, a residual foreign body was strongly suspected and the presence of a residual

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foreign body was confirmed by MRI. The patient was started on systemic antibiotics along with daily dressing of the sinus. One week later, a foreign body, measuring 1.2 cm, was seen in the gauze when the dressing was removed. On follow-up, there was no further discharge from the sinus. So further active intervention was deferred at that point and the patient was advised regular follow-up. A repeated CT scan of the orbit was done a year later, which showed complete resolution of the mass as well.

Banarjee et al. [10] reported spontaneous extrusion of wooden foreign body after 6 months of injury in a 23 year old male who presented with swelling in the left upper lid and purulent discharge for two months after sustaining injury by a plant branch as he bent to pluck some flowers in a garden about 6 months earlier. Consequently he developed severe pain with bleeding in the left upper lid and was treated elsewhere. After an asymptomatic period of four months, he gradually developed throbbing pain and swelling at the site of injury. Systemic antibiotic and anti-inflammatory were started; the very next day morning after admission, spontaneous partial extrusion of a stick was seen through the sinus. The stick was removed completely with the help of an artery forceps. The extracted stick measured 3.8 cm. The CT scan and ultrasonography did not show any residual foreign body in the orbit [13].

Early expulsion of entire foreign body is very rare. Only one case has been reported with spontaneous extrusion of wooden foreign body in just three weeks of time. In a case report by Mehta et al. [14], a 6 year old male child reported to the emergency room with trauma to right eye with a wooden stick, accompanied by sudden painful diminution of vision, drooping of right upper lid, redness and watering. At presentation, his visual acuity in right eye was accurate PR. Right eye upper lid edema was present with complete ptosis and axial proptosis of 3 mm. Extra ocular muscle movements was limited in all gazes. Conjunctival congestion and chemosis was present. The pupil was fixed and mid-dilated with normal anterior chamber depth, iris and lens. The fundus showed normal optic disc and diffuse retinal edema. A sinus with purulent discharge through it was present on inferolateral aspect of the right lower lid. The pus was sent for culture and sensitivity. The culture was sterile after 48 h. Left eye was normal. A provisional diagnosis of orbital cellulitis with retained orbital foreign body was made and patient was started on intravenous antibiotics. The proptosis, ptosis and chemosis improved markedly. However the limitation of extra ocular movement and discharging sinus persisted. A computed tomography (CT) scan revealed a hyper dense intra-orbital foreign body of 5.6 × 3.4 mm with minimal surrounding fluid in the intraconal space of the right orbit. A hypodense tract was also noted along inferolateral aspect of right orbit, the findings of which were confirmed by the MRI scan. Orbital exploration was done through trans-conjunctival approach from inferior fornix one week later. No foreign body was

detected even after a thorough exploration. Three weeks later, patient presented with spontaneous extrusion of a wooden foreign body of approximately 4 × 5 mm. The sinus below the eyelid was closed and replaced by a scar. The vision in right eye had improved to 6/12. A repeat MRI head and orbit done after four weeks showed normal study with no foreign body and no sinus tract. In this case, the foreign body was missed despite thorough exploration of both intraconal and extraconal spaces of orbit probably because it was lodged deeper into the floor of orbit and encased within the soft tissue of orbit. Whole of the wooden foreign body then spontaneously extruded through the same sinus tract without any intervention and the sinus closed on its own.

Thus, we emphasize that a high index of suspicion is required to prompt early diagnosis of retained organic foreign bodies because of the diagnostic dilemma presented by the virtue of a small and frequent self-sealing wound, tendency of organic foreign body to break during removal and misdetection by standard diagnostic tests like the computed tomography scan, adding to the diagnostic dilemma. Thus it is prudent to obtain a history of trauma in patients presenting with an intra-orbital mass with or without discharging sinus regardless of the interval between the trauma and clinical presentation to prompt early management. However, a possibility of spontaneous extrusion should be borne in mind while dealing with such cases to prevent misdiagnosis and mismanagement.

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