Diagnostic Imaging Pathways - Orbital Foreign Body (Suspected)

Population Covered By The Guidance

This pathway provides guidance on the imaging of an adult patient with a suspected orbital foreign body.

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Quick User Guide

Move the mouse cursor over the PINK text boxes inside the flow chart to bring up a pop up box with salient points.
Clicking on the PINK text box will bring up the full text.
The relative radiation level (RRL) of each imaging investigation is displayed in the pop up box.

SYMBOL	RRL	EFFECTIVE DOSE RANGE
	None	0
	Minimal	< 1 millisieverts
	Low	1-5 mSv
	Medium	5-10 mSv
	High	>10 mSv

Pathway Diagram

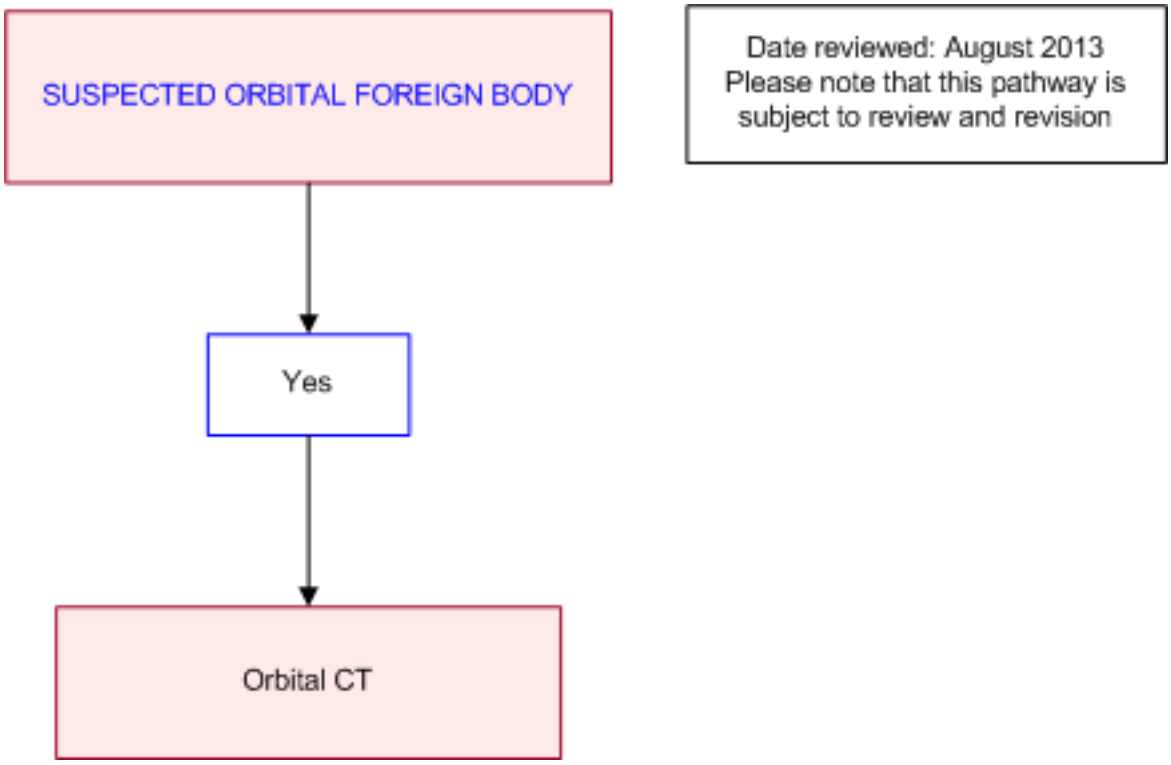

Image Gallery

Note: Images coming soon.

Teaching Points

- Helical CT scanning is considered diagnostic method of choice for the detection of intraocular and orbital metallic, glass and stone foreign bodies and is preferred over MR imaging and sonography.

Investigation of Suspected Orbital Foreign Body: Computed Tomography

- Helical CT axial scanning with multiplanar reconstruction is accurate at detecting and localizing intraocular and orbital metallic, glass and stone foreign bodies 1-5
- Helical CT scanning is considered the diagnostic method of choice for the detection of intraocular foreign bodies and is preferred over both MR imaging and sonography 1,2,4,6,7
- In their study on porcine eye model to look at the efficacy of different imaging modalities for detecting various types of glass fragment subtype, location, and size, Gor et al showed that the helical CT was the most sensitive imaging modality for the detection of intraocular glass. 8 Green beer bottle glass was easiest to detect, and spectacle glass was the most difficult. On helical CT, glass fragments were easier to detect in the anterior chamber, and most difficult on the corneal surface
- McGuckin, in their in vitro model, concluded that CT was the preferred imaging modality for wooden foreign bodies 6
- It is critical to detect wood as organic foreign bodies can lead to a number of complications

including cellulitis, abscess and increased mortality when compared with metallic foreign body which are relatively well tolerated 9

References

References are graded from Level I to V according to the Oxford Centre for Evidence-Based Medicine, Levels of Evidence. Download the document

1. Lakits A, Steiner E, Scholda C, Kontrus M. **Evaluation of intraocular foreign bodies by spiral computed tomography and multiplanar reconstruction.** Ophthalmology. 1998;105(2):307-12. (Level III evidence)
2. Lakits A, Prokesch R, Scholda C, Bankier A. **Orbital helical computed tomography in the diagnosis and management of eye trauma.** Ophthalmology. 1999;106(12):2330-5. (Level II evidence) View the reference
3. Chacko J, Figueroa R, Johnson M, Marcus D, Brooks S. **Detection and localization of steel intraocular foreign bodies using computed tomography. A comparison of helical and conventional axial scanning.** Ophthalmology. 1997;104(2):319-23. (Level II evidence) View the reference
4. Lindahl S. **Computed tomography of intraorbital foreign bodies.** Acta Radiol. 1987;28(3):235-40. (Level III evidence)
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6. McGuckin Jr J, Akhtar N, Ho V, Smergel E, Kubacki E, Villafana T. **CT and MR evaluation of a wooden foreign body in an in vitro model of the orbit.** Am J Neuroradiol. 1996;17(1):129-33. (Level III evidence)
7. McNicholas MM, Brophy DP, Power WJ, Griffin JF. **Ocular trauma: evaluation with US.** Radiology. 1995;195(2):423-7. (Level II evidence) View the reference
8. Gor DM, Kirsch CF, Leen J, Turbin R, Von Hagen S.**Radiologic differentiation of intraocular glass: evaluation of imaging techniques, glass types, size, and effect of intraocular hemorrhage.** AJR Am J Roentgenol. 2001;177(5):1199-203. (Level III evidence)
9. Go JL, Vu VN, Lee KJ, Becker TS. **Orbital trauma.** Neuroimag Clin N Am. 2002;12(2):311- 24. (Level III evidence)

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	Radiation Risk of Medical Imaging for Adults and Children

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