“DADDY I’VE BEEN SHOT”
Learning Points in the Management of Paediatric Head and Neck Gunshot Wounds
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KEY LEARNING POINTS
• First case reported to our knowledge of a transoral endoscopic approach to remove cervical spine bullet fragments in a child
• Compared to the traditional spinal microscopic approach, the imaging and ability to enter the operative zone was of a high quality and greatly improved access
• A multidisciplinary approach to managing penetrating trauma of the face, neck and spine is important
• On-table CT stealth is useful to locate metallic debris with less scatter and more accurate positioning of soft tissue fragments
• The use of endoscopes continues to expand into areas of surgery where traditional methods may have some limitations
• The issue of long term lead poisoning due to lead bullet fragments in a synovial joint is a rare complication reported in the literature

Background
Gunshot wounds in the paediatric population are rare but pose challenges. The management of facial gunshot wounds, including the endoscopic transoral approach for the retrieval of cervical spinal foreign bodies, is described.

Case Report
A 5-year old boy suffered a single gunshot wound by a .22 calibre rifle in a rural area. The entry point was via his right maxilla and he sustained fragments embedded into his face, maxilla, tongue, & tonsillar fossa with the largest fragment in the base of the odontoid process of C2 (Figure 1).

He initially was assessed in a regional centre where his C-spine was immobilised, his airway was secured & he was urgently transferred to our tertiary children’s hospital. CT angiogram showed fragments whilst close did not appear to involve the spinal cord.

Initial debridement of wounds and removal of shrapnel was performed. Management of the cervical spine fragment was challenging due to the position in relation to the spinal cord and the potential risk of instability on removal. This was weighed against long term concern with lead poisoning due to the involvement of the synovial joint.

Due to an elevated lead level of 1.15 umol/L (normal <0.24) and discussions with toxicologists, the decision was made to retrieve the lead fragments to avoid further long term elevation in lead levels.

A combined procedure was undertaken with the ENT and spinal orthopaedic team. The cervical spine was stabilized in a Halo and Mayfield clamp. Oral retractors were placed for exposure, and an on-table CT was performed. This aided the accuracy of stealth for soft tissue shrapnel and provided less artefact from metallic fragments.

Fragments were retrieved from the soft tissue in the lateral nasopharynx with the aid of image guidance. A stealth targeted incision over the main bullet fragment in the cervical spine was made. The soft tissue was cleared to expose the bullet fragment embedded in the spine with a transoral endoscopic approach with 0 degree and 30 degree endoscopes (Figure 2). Lead levels post procedure have gradually improved from 1.15 umol/L to 1.03 umol/L.

The patient required halo immobilization for 8 weeks and has made a remarkable recovery from such a serious injury with no neurological impairment.