Swimmer's view: a diagnostic adjunct for oesophageal foreign bodies

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We describe the use of a common radiographic view of the lower cervical skeleton, 'Swimmer's View', to aid the diagnosis of foreign bodies in the upper oesophagus, which may be obscured by the clavicles. We further recommend this view when there is uncertainty over the nature of an impacted food bolus in this location, and luminal air is the only visible sign on a plain soft-tissue cervical radiograph

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INTRODUCTION

Dysphagia secondary to presumed foreign body in the upper aerodigestive tract is a common presentation to the Accident and Emergency Department. After the tonsillar fossa, the next most common site is the upper oesophagus.[1] The cricopharyngeal sphincter and upper oesophagus are also the favoured sites for food bolus impaction. These are points of natural anatomical narrowing at 15 and 25 cms from the incisors. However, reasons for impaction here may have more to do with motility patterns than anatomy.[2]

In the upper oesophagus, the soft-tissue cervical radiograph is pivotal in making the diagnosis and planning treatment. Positive findings include abnormal 'calcification' due to a bony or metallic foreign body, or merely air in the collapsible oesophageal lumen held open by a food bolus. The clavicles and dense tissue at the base of the neck often obscure the radiographic views.

When the presence of luminal air is the only finding, the nature of an impacted bolus may depend on the history given. Soft boluses may lend themselves to conservative management but hard foreign bodies require urgent endoscopic removal. In practice, a significant number of patients with bolus impaction will be elderly, demented, inebriated or have learning difficulties. This often renders the history unreliable.

We describe the use of a common radiographic view for the lower cervical vertebrae – 'Swimmer's View' – as a useful adjunct for diagnosing foreign bodies and determining the nature of food boluses in the upper oesophagus. This gives a better view of foreign bodies obscured by the clavicles and helps determine the nature of impacted boluses where the history is unreliable.

CASE REPORT

A 34-year-old man presented to the Accident and Emergency Department with sudden-onset of dysphagia after a meal of seafood pasta. This had been ingested rapidly with an undetermined amount of alcohol. There was no chest pain at presentation. The patient gave no previous history of dysphagia, or any significant past medical history. Clinical examination was unremarkable with a normal oropharynx and neck. A provisional diagnosis of a soft food bolus impaction was made.

Figure 1: The initial soft tissue neck radiograph; note the artefact in the glottic region distracting attention from the true foreign body

An initial soft-tissue cervical radiograph was deceptively normal with an unusual bony prominence arising from the clavicles. (Figure 1) However, a second 'Swimmer's View' identified a radio-opaque teardrop shaped object in the oesophagus anterior to the seventh cervical vertebra. (Figure 2) There was no evidence of mediastinal emphysema.

Urgent direct oesophagoscopy under general anaesthesia was performed. In the region concerned, an intact clamshell was encountered. After several unsuccessful attempts at removing it in toto, it proved necessary to break it into three parts. (Figure 3).There was no trauma to the oesophageal mucosa, and neither nasogastric tube insertion nor gastric aspiration was carried out. The patient made an uneventful recovery and was discharged 24 hours post-operatively.

DISCUSSION

Foreign bodies in the oesophagus carry significant morbidity and mortality if the duration of impaction is prolonged. The major complication rate surpasses 7%.[3] Perforation of the cervical oesophagus most often leads to abscess formation whilst

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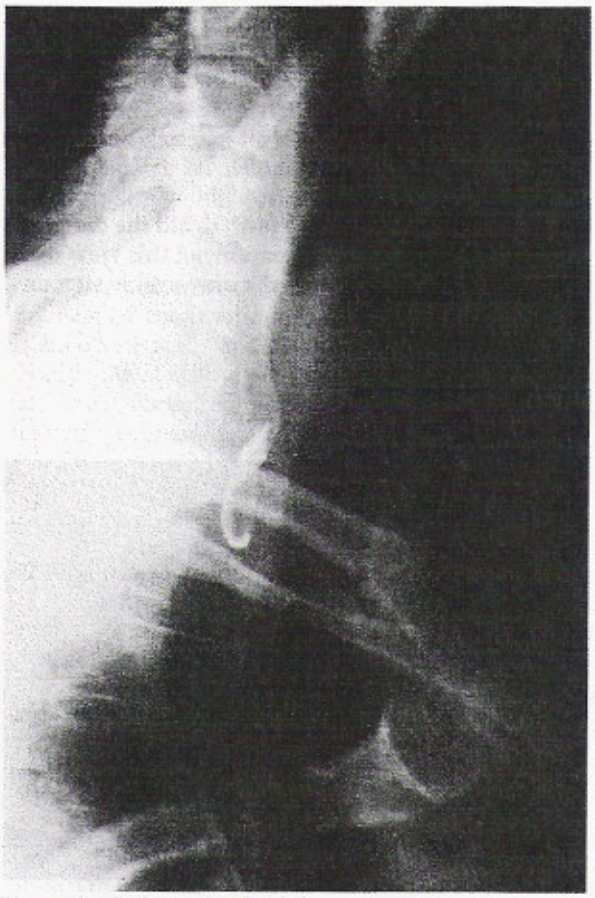

Figure 2: 'Swimmer's View' demonstrating a foreign body anterior to C7

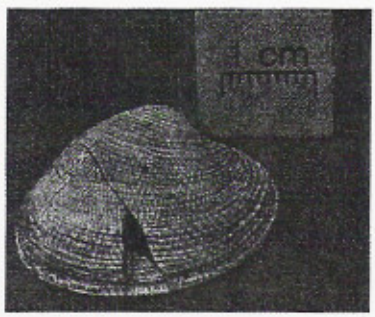

Figure 3: The offending object - a clam shell

perforation of the intrathoracic oesophagus may lead to mediastinitis, mediastinal abscess and, rarely, aortoenteric fistulae or even cardiac tamponade.[4,5] This emphasises the importance of an early diagnosis and appropriate management.

In most Accident and Emergency departments, a soft tissue lateral cervical radiograph is taken for foreign bodies in the 'throat'. In a large series reported by Jones et. al.[1] (1991), 16% fewer radiographs could have been done had the oropharynx been examined thoroughly – identifying fish bones retained in the tonsils or tongue.[1] Radiography only improved the management in a small minority and casualty officers misinterpreted 35% of the films.

With suspected oesophageal foreign bodies or food boluses, a soft-tissue lateral neck radiograph is pivotal in making the diagnosis. These radiographs can be difficult to interpret with calcification of the laryngeal cartilages and stylohyoid ligament often confusing junior staff. Not infrequently, these radiographs are poorly penetrated and the cervico-thoracic area obscured.

Whilst direct oesophagoscopy should be undertaken in cases where clinical suspicion is high, an alternative radiographic view – the so called swimmer's view – may shed light on foreign bodies obscured in the cervico-thoracic junction. In this case, the swimmer's view demonstrated the clamshell in the upper oesophagus. It helped plan for the subsequent endoscopic procedure.

In cases where an impacted food bolus is suspected based on intra-luminal air in the cervical radiograph and the patient gives an unreliable or no history whatsoever, the swimmer's view helps determine the nature of the bolus. In this particular case, the patient's history was misleading. Managing hard foreign bodies conservatively, based on the presumption that they are soft food boluses can have disastrous consequences.

Once the nature of an uncertain food bolus is determined using this radiographic view, conservative management using an anti-spasmodic (e.g. hyoscine butylbromide,), may be deemed appropriate. This obviates the need for a general anaesthetic and rigid oesophagoscopy, which are not without risks.

Perforation of the oesophagus carries an overall mortality rate of 30%.[6] However, it is note-worthy that perforations due to ingested foreign bodies is a rare but important sub-entity that responds well to surgical treatment.[7]

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