RETROPHARYNGEAL ABSCESS SEQUEL TO SWALLOWED MEAT BONE

Dr. Eze KC, MBBS, FMCR, FWACS* ezechallenge@yahoo.co.uk;
DR. Awosanya GOG, MBBS, FMCR**
** Department of Radiology, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria.*
***Department of Radiodiagnosis, Lagos University Teaching Hospital, Idi-Araba, Lagos, Nigeria.*
 # Address Correspondence to:
Dr. Eze KC, MBBS, FMCR, FWACS

ABSTRACT

A 5 year old boy had meat bone traumatically dislodged from his pharynx by his mother. A retropharyngeal abscess developed five days later. Diagnosis was made on lateral x-ray of the neck. The abscess was successfully drained. Culture of abscess yielded Staphylococcus aureus and Escherichia coli. Complications of retropharyngeal abscess and modes of diagnosis are discussed.

KEY WORDS: Retropharyngeal, Abscess, Meat Bone, Radiology, Diagnosis

INTRODUCTION

Abscess formation within the retropharyngeal soft tissue of the neck (Retropharyngeal abscess) is a very serious condition made presently uncommon by the widespread use of antibiotics. However, new cases of this rapidly fatal condition continue to be reported especially in developing countries. Retropharyngeal abscess in children is usually as a result of the following: upper respiratory tract infection, perforating injury of the pharynx and oesophagus, suppuration of infected lymph node, cervical osteomyelitis, infected branchial cleft cyst, spreading infection from the mouth, jaw, mastoid, skin, lung, mediastinum and pleural space. [1,2,3,4,5]. Plain lateral and antero-posterior radiograph of the neck are the main diagnostic modality frequently used and are adequate for the diagnosis. The radiological features seen in plain film include increased thickness of the retropharyngeal space which is more than ¾ of the anteroposterior diameter of the body of the 4th cervical vertebral measured at 4th cervical vertebral body level[5]. There may be the reversal of cervical lordosis, anterior deviation of the trachea or airway. The abscess itself may be seen as mottled opacity in the retropharyngeal soft tissue and it may contain gas or air-fluid level.[1,2,3,4] Complications of retropharyngeal abscess are life threatening. As a result, accurate radiological diagnosis and early treatment are important.

A CASE REPORT

Master EO, a 5 year old child presented to the Accident and Emergency Unit of the University of Benin Teaching Hospital (UBTH) on 24th February, 2001 with the complaint of difficulty with swallowing, severe neck pain, fever, inability to flex his neck and a bulge in both sides of the neck all of 8 days duration.

His problems started about 12 days before presentation after he ate a piece of meat containing some bone. On swallowing the meat, it got stuck in the pharyngeal region. His mother tried to manipulate the meat upwards so that patient could vomit it out but it was not possible.

After several attempts of swallowing and vomiting, the patient finally swallowed the meat. However, the next day he started feeling pain in the throat at school. This continued for several days after which pain was relieved with tablets of phenacetin.

However, about 5 days before presentation, patient started having fever and this was initially intermittent but got progressively more persistent. He could not flex his neck and a bulge was observed on both sides of his neck. He also found it very difficult to swallow, which made them seek medical attention.

He is the second child of three children. The 2

other siblings are healthy. There is no history of diabetes, hypertension or asthma. There is no history of tuberculosis or contact with tuberculosis patient.

On physical examination, a febrile, ill-looking well fed child with an extended neck seen. Small soft tissue bulges were noticed in both sides of the neck. Patient was not pale and there was no obvious respiratory distress. He weighed 24 kg. Temperature was 38.5 °C. No peripheral lymphadenopathy.

Pulse rate was 112 per minute, regular with good volume. Heart sound was normal (I and II), no murmur. Respiration was 40 per minute. Chest was clinically clear. Abdomen was scaphoid with normal liver, spleen and kidney. Patient was well oriented in time person and place without evidence of loss of muscle tone or weakness of limb. Crepitus was noted in the soft tissue bulges on both sides of neck at about third cervical to sixth cervical vertebral levels. Haemoglobin level was 14g/dl. Genotype was AA. Neutrophils 74%, lymphocytes 26%. Sputum examination for acid and alcohol fast bacilli (AAFB) using three consecutive samples were negative

Lateral radiograph of neck showed significant increase in the width of prevertebral soft tissue opacity extending from the nasopharynx to the root of the neck. There was also multiple air loculation and linear bony fragments causing displacement of the trachea and reversal of normal curvature of cervical spine. The cervical bony outline, alignment and bony texture were normal (figure 1). Chest and skull radiography were normal. Ultrasonography of the neck showed a hypoechoic area with internal echoes at both sides of the trachea extending from the upper limit of the neck to the root of the neck. Abdominal ultrasonography showed normal findings. An impression of prevertebral abscess secondary to injury from swallowed meat bone, with linear bone fragment in-situ was made. Patient was referred to the ENT Unit, where he was admitted.

Figure 1

The bone fragment was removed endoscopically and the abscess drained through the oral route. Culture of the drained pus yielded Staphylococcus aureus and Escherichia coli. Patient was placed on paediatric full doses of culture-sensitive antibiotics for 5 days. The abscess was successfully drained and thereafter patient was discharged home on the 8th day. Patient is presently back to school and has visited the clinic twice.

DISCUSSION

Many children ingest numerous foreign objects, which may lodge in the pharynx or oesophagus, perforate it and cause retropharyngeal abscess.[3] The commonest organisms isolated are usually Staphylococcus, Streptococcus, or mixed flora. However other numerous organisms have been reported including Clostridium septicum Myonecrosis, Gamella specie, Acteroides, Micrococcus, Neisseria, Mycobacteria tuberculosis in cases of tuberculosis of cervical spine. Several other organisms that cause opportunistic infections have been isolated and rarely no organism is isolated.[1,2,4,5] Retropharyngeal abscess have been reported in different age groups including adults, children, neonates and even infection from birth canal.[1,5,6,7]

Several authors have recorded complications of retropharyngeal abscess and many of these are life threatening and include necrotising mediastinitis[7], internal carotid artery involvement including arteritis, narrowing and spasm[3], tracheal compression[6], cardiac arrest, mediatinitis and pericarditis[7], acute internal jugular vein thrombosis, empyema thoracis with pharyngo-pleural fistula[4,7], atlanto-axial subluxation[7], torticolis[5,6] meningitis, epidural abscess and septicema[4]. Osteomyelitic changes in adjacent bone may be seen[4,5,8]. On antero-posterior radiograph of the neck a soft tissue bulge on both sides of the neck with gas or fluid level within the paratracheal soft tissue may be seen[1].

Apart from plain film, barium given orally may be necessary in cases of ingested non-opaque foreign body. Radio-opaque foreign bodies are usually visualized in both

lateral and antero-posterior radiographs of the pharynx. Cotton wool soaked with barium has been used to detect small non-radio-opaque foreign bodies[3,5]. Inflating a ballooned catheter distal to the foreign body and then withdrawing it through the mouth under fluoroscopy is widely accepted as one of the standard treatment in foreign body removal in the pharynx. However, endoscopic removal of foreign body is the method preferred by most ENT surgeons where facilities are available and only if this fails is surgery considered. Abscess drainage is usually through the oral route[3,4].

Though plain radiograph is adequate for the diagnosis of retropharyngeal abscess several authors have documented the need for the use of other modalities of investigation like computed tomography (CT) scan (1) magnetic resonance imaging (MRI), barium swallow and ultrasonography (3-5). Plain lateral radiograph of the neck will show an increase in retrotracheal soft tissue space, and since abscess is a space occupying lesion, it will show other signs of space occupying lesion like narrowing of the airway, tracheal compression, tracheal deviation and changes in alignment of cervical spine[9]. Gas is seen with in the soft tissue. Plain radiograph may also show changes as a result of osteomyelitis of pyogenic or tuberculosis origin [1,5]. However CT scan of the neck has better resolution than plain film in defining both bone and soft tissue changes. The cost of CT examination must be weighed with the benefits especially in developing countries. Both plain radiography and CT scan of skull and chest are also necessary to exclude involvement of the skull and chest.

Magnetic resonance imaging (MRI) has superior soft tissue resolution than plain radiography and CT scan. Where it is available and the cost affordable, it should be used to elicit early complications like epidural abscess, jugular vein thrombosis and empyema[4]. Also because of absence of partial volume averaging, MRI may be superior to CT scan in detecting early involvement of the atlanto-axial bone[8]. The use of MRI and CT scan is limited in Nigeria by availability and cost.

Barium studies especially barium swallow and swallowing a barium soaked cotton wool will aid diagnosis. There will be obstruction to distal movement of barium soaked cotton wool by the foreign body in the neck or oesophagus[1,2, 4]. In our case the meat bone was radio-opaque and this was therefore not necessary. Barium swallow with radiographic exposures taken in lateral view of neck will also show increased distance between the barium column and the cervical or thoracic vertebrae.

Ultrasonography and endosocopy are adjuvant diagnostic modalities but are more frequently used in interventional procedures like endoscopic foreign body removal or ultrasound-guided biopsy of cervical lymph node or drainage of the abscess. Ultrasonography can also be used to diagnose empyema. Adequate culture of the pus and sensitivity testing is necessary to identify the specific organism.

The differential diagnosis of retropharyngeal abscess includes masses in the retropharyngeal space or neck with widening of retrotracheal soft tissue space. Anterior meningocoele will have the radiological features of soft tissue mass with widening of the retropharyngeal space. Meningocoele which is congenital, presents without fever and is uncommon in the cervical region. Lucencies due to gas lucencies are not seen within it in plain radiograph. Metastasis or enlarged lymph nodes in the retropharyngeal space will have similar radiological appearance but there will be absence of fever and mottled lucencies or gas within the soft tissue. Infected cystic hygroma, inflamed enlarged tonsil and adenoid may be difficult to differentiate from retropharyngral abscess. All these can be diagnosed by direct examination or laryngoscopy and the mottled lucencies of abscess will be absent. Most axial CT scans of the neck will clearly show the localized lymph node, metastasis, tonsil and adenoid; and CT scan will confirm that the content of the anterior meningocoele to be fluid[3,4].

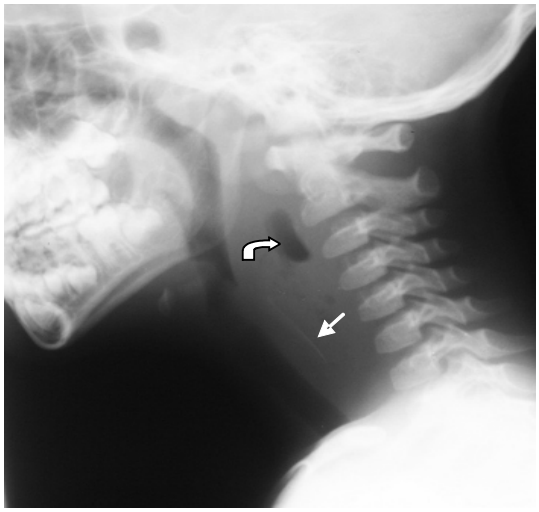

Figure 1.:
Plain lateral radiograph of the neck showing increased width of retropharyngeal soft tissue space with mottled opacities and lucencies (gas) within it (curved arrow) in keeping with abscess. Note also a linear radio-opacity of meat bone within the abscess (straight arrow) and straightening of cervical spine.

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