Retropharyngeal abscess in a child secondary to polyvinyl plastic tube trauma

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ABSTRACT

Introduction: Retropharyngeal abscess (RPA) is a deep neck infection occurring in children of less than six years of age. Case Report: We present a case of RPA in a child who came to our emergency room with seemingly trivial intraoral injury. Retropharyngeal abscess is a potentially serious deep neck space infection. It can be of medical or traumatic in origin. There is paucity of literature on pediatric deep neck space abscesses, especially here in Oman. Ear, nose, and throat infections or pharyngeal trauma can lead to RPA which can be life-threatening if it compresses trachea or large vessels. Neck pain, fever, and dysphagia are usual presenting complaints with pharyngitis, tonsillitis, epiglottitis, and foreign body as main differentials. Computed tomography (CT) of the neck is the gold standard; however, X-ray of neck can be done if CT facility is not available. Intravenous (IV) antibiotics are the main treatment and drainage in cases of large or antibiotic resistant RPA. Our patient diagnosed on CT neck and responded well to the IV antibiotics. Conclusion: The emergency room physicians and the general practitioners should keep a high index of suspicion for the RPA in children with trivial throat injury.

Keywords: Plastic, Polyvinyl, Retropharyngeal abscess, Trauma

INTRODUCTION

The retropharyngeal space is a midline deep compartment of the head and neck that consists largely of fatty areolar tissue and lymph nodes that drain the pharynx, nose, and middle ear [1, 2]. The RPA is type of deep neck infection, the others being parapharyngeal, peritonsillar, and submandibular abscesses, incidence of RPA is 46 per 100,000 mostly in children less than 6 years old [1]. Infection in the ear, nose, and throat or any injury to the pharyngeal wall or the neck can easily introduce infection into this space and the resulting edema may lead to compression of the trachea, causing respiratory compromise or the contagious spread of infection to the other critical mediastinal structures. It is imperative that any infection in this area should be promptly diagnosed and treated. Deep neck infections usually present with neck pain, difficulty in swallowing and restriction of movement of the neck among other symptoms, the management includes giving intravenous antibiotics and if needed surgical incision and drainage [3].
CASE REPORT

A 4-year-old boy having no known comorbid was brought to the emergency department (ED) of a tertiary care hospital with complaints of throat pain, difficulty in swallowing, and inability to move neck for the last three days. According to the parents the child was running with a small polyvinyl pipe in his mouth and he fell, three days back. He was taken to the local health center from where he was discharged on analgesics but his pain did not settle and was then brought to our ED on the same day. His throat exam at that time revealed small abrasion with surrounding erythema over posterior pharyngeal wall just left of the midline without any active bleeding. He was discharged with analgesic and antibiotics (amoxicillin and clavulanic acid) with explanation of red flags to the parents. After two days he was brought back to our ED as his condition became worse, with difficulty in swallowing, excessive salivation, neck pain, and inability to move his neck. He was afebrile, heart rate 120 per minute, respiratory rate 28 per minute. His examination revealed, a sick looking child, who was keeping his neck bend to the left side, was in pain with some drooling of the saliva. He did not have any shortness of breath or stridor; there was no cervical crepitus or any palpable cervical lymph nodes. His throat examination on the second visit was similar to the first examination. Blood tests were done revealing serum electrolytes within normal limits and white blood cell count of 9.2 (4–14) with C-reactive protein (CRP) of 19. A CT was done which showed increased prevertebral space of 16 mm at the level of third cervical vertebra (C3) (Figure 1) denoting prevertebral soft tissue edema and there is evidence of left retropharyngeal space hypodense area and incomplete ring of enhancement and multiple air spaces denoting RPA (Figure 2). The abscess was 15 × 22 mm in size and there was left posterolateral mass effect over trachea without any compromise over its patency (Figure 2). The air spaces were extending up to upper mediastinum (Figure 3). The child was then referred to the ear, nose, and throat team who admitted him and started conservative treatment with antibiotics (ceftriaxone and clindamycin). His surgical drainage was deferred as he responded well to the antibiotics and was discharged after one week of uneventful stay.

DISCUSSION

Retropharyngeal space is a potential space posterior to the pharynx, larynx, and trachea. It is bounded by the base of the skull superiorly, trachea inferiorly, carotid sheaths and parapharyngeal spaces laterally, posteriorly by the alar and the deep cervical fascia, and anteriorly is the buccopharyngeal fascia [2]. Lacerations of the buccopharyngeal wall will allow air and saliva that are laden with oral flora and food particles to enter the facial planes of the neck continuous with the mediastinum. Gravity and intermittent negative intrathoracic pressure favor the spread of this material and as a result development of the deep neck infections and abscesses. Children usually present to the emergency room with history of fever, irritability, poor feeding, drooling, neck pain, and swelling of the neck [4]. The parents might not always give the history of trauma because they may even not know about it or probably forgot and did not think it to be relevant. Yang et al. describe fever as the most common complaint 93.2%, neck pain 54%, odynophagia 47.7%, and abnormal leucocyte count in 87.8% [4]. Another study has reported respiratory distress in almost 7% of their patients in addition to the above mentioned...
symptoms [3]. Our patient did not have fever and the white blood count was also normal probably because he was on antibiotics for the two days prior to the presentation but he did have other symptoms like neck pain, drooling, difficulty in swallowing, and torticollis. Sometimes the RPA presentation is very nonspecific, delaying its diagnosis. Tonsillitis, pharyngitis, epiglottitis, foreign body mediastinitis, and meningitis can all be considered as differentials of RPA [5]. In one series five patients with RPA underwent lumbar puncture because of the presence of neck stiffness, fever, and neck pain [6]. With a high index of suspicion the physician should be alert for the possibility of pharyngeal perforation if there is suspected history of trauma to diagnose RPA. A soft tissue lateral film of the neck is the key investigation with sensitivity of 80% as a screening tool for the RPA [7]. The criteria to suggest a RPA include thickening of the prevertebral soft tissue of more than 50% from the width of any cervical vertebral body, presence of gas or fluid level in the prevertebral shadow. Computed tomography scan proved to be the imaging of choice with 92% sensitivity for the diagnosis [7]. Our patient had all the classical radiological features of the abscess, e.g., increased width of the prevertebral tissue, ring enhancement, air the retropharyngeal space and edema. Nonsurgical management of RPA when started early has a success rate of 100%, it includes broad spectrum IV antibiotics and esophageal rest. Surgical drainage is advisable if the symptoms are not improving after IV antibiotics or if there is respiratory compromise [5]. Initial choice of antibiotic should include ampicillin, sulbactam, or clindamycin [5]. Yang et al. show that higher percentage of children underwent surgical drainage as compared to the adult patients (84.7% vs 57%, p value: 0.034) [4]. Çetin et al. in their study describe all children being treated conservatively with intravenous antibiotics for seven days (combination of penicillin, ceftriaxone, metronidazole, and clindamycin) and none requiring surgical intervention [1]. Our patient was given ceftriaxone and clindamycin intravenous and was successfully treated over the period of seven days. Many studies have described complications of RPA, they include airway obstruction, jugular vein thrombosis, pericarditis, pleural empyema, and arterial erosion [2, 3, 5]. Jain et al. report a higher incidence of complications in children below two years of age with RPA as compared to the other deep neck infections [3] and Khudan et al. report that all the children in their study with abscess 2 cm or less resolved with antibiotics alone with no complications [8].

CONCLUSION

Innocuous posterior pharyngeal wall trauma can lead to the formation of RPA that can be missed easily. The emergency room physicians and the general practitioners should keep a high index of suspicion for the RPA in children with trivial throat injury.

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Author Contributions

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