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Case report

Sequential parapharyngeal abscesses

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Abstract

Deep neck infections are not unusual in either the pediatric or adult populations. Multiple, and recurrent abscesses are found not infrequently, especially in immunocompromised and debilitated persons. It is very rare to find sequential parapharyngeal abscesses without identifiable etiology in an otherwise healthy pediatric patient while receiving appropriate, culture-directed, intravenous antibiotics. This could be due to underestimation of the extent of the infection by CT scanning. The use of intravenous clindamycin as a first-line therapy may not be sufficient if a large phlegmon exists. We describe a case of sequential, bilateral parapharyngeal abscesses in a 3-year-old patient.

Keywords: Parapharyngeal; Abscess; CT; Antibiotic; Clindamycin; Pediatric infection

1. Case report

A 3 year-old female presented to the emergency ward of the Montreal Children's Hospital with a 7 day history of fever, anorexia, and progressive left neck swelling. Two days prior to her presentation, the patient had been prescribed a weight appropriate dose of amoxicillin/clavulanate by her pediatrician for suspected pharyngitis. In spite of antibiotic therapy, the patient continued to experience a spiking temperature pattern and progressive enlargement of the left neck swelling. In the emergency ward, the patient was found to be irritable and uncooperative. She was febrile to 39°C orally, and moderately dehydrated. She had a 3×2 cm firm, tender, left upper-cervical mass underlying the sternocleidomastoid muscle. A lateral soft-tissue neck X-ray revealed mild thickening of the retropharyngeal space without evidence of trapped air. The patient was admitted to the hospital for intravenous antibiotics (clindamycin at 10 mg/kg/day, divided q6h), hydration, and close observation of the left neck mass. In the next 24 h, the patient had no improvement in her clinical status. Her temperature pattern continued along a spiking pattern, and the cervical mass continued to enlarge. A contrast-enhanced CT

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scan of the neck was obtained (Fig. 1) which revealed a large left parapharyngeal homogeneous hypolucency with rim enhancement, measuring 7×10 cm and displacing the great vessels anteromedially. Following the CT scan, the patient was taken to the operating room for an external incision and draining of the left parapharyngeal space. A total of 15 cc of frank pus was encountered. She was continued on intravenous clindamycin post-operatively. In the initial 24 h post-operatively, the patient had a good response, deffervecing, and beginning to take fluids by mouth. However, in the next 24 h, the spiking temperature pattern returned, and the patient became irritable again. Repeat CT imaging of the neck (Fig. 2) demonstrated a second, sequential, homogenous (septated) hypolucency with ring enhancement in the right parapharyngeal space, measuring 4×4 cm and displacing the great vessels laterally. The left parapharyngeal space abscess had largely resolved. The patient was again taken to the operating room, where an intra-oral incision and draining of the right parapharyngeal space was completed. The patient's condition rapidly improved after the second surgical intervention. Results of both microbiologies revealed the presence of staphylococcus aureus as the main component of the purulent material, sensitive to clindamycin. The patient was discharged on day 8 on oral clindamycin with complete clinical resolution. Follow-up of the patient at 6 months demonstrated neither pathologic etiology for the development of the second abscess, nor clinical evidence of an underlying immunocompromised status.

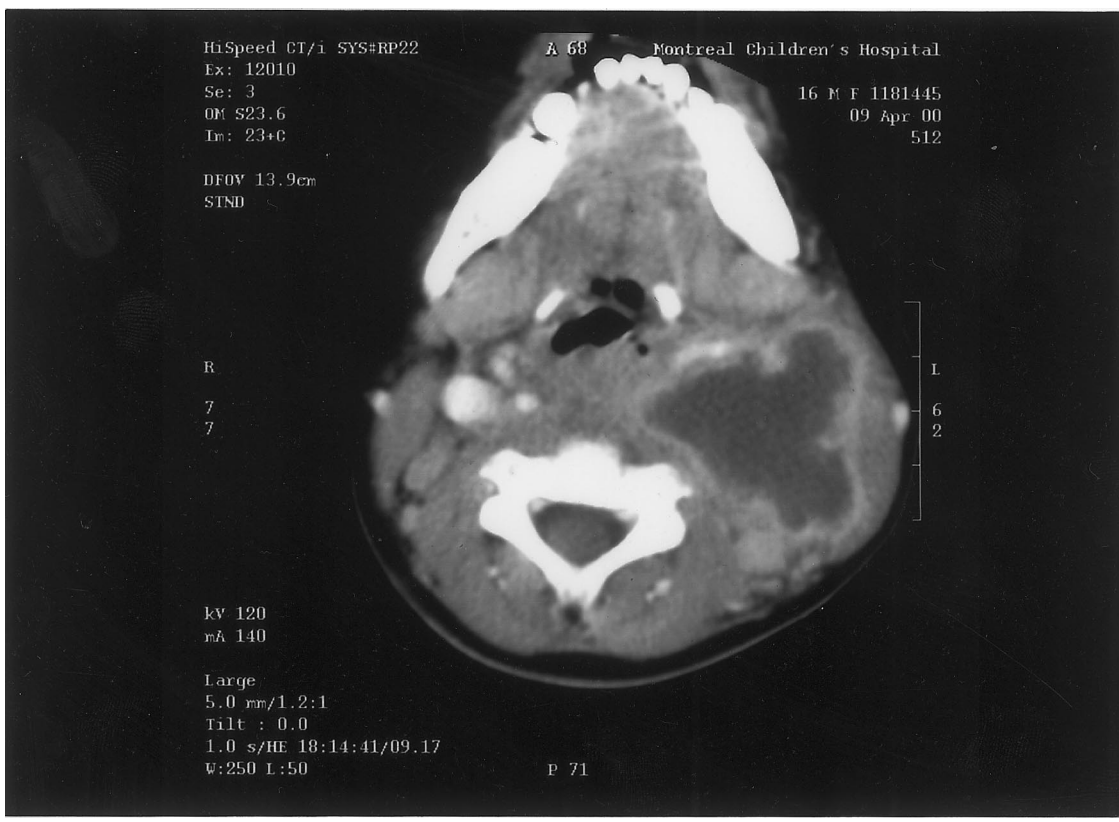

Fig. 1. Contrast-enhanced CT scan of the neck demonstrating a left parapharyngeal homogenous hypolucency with rim enhancement, measuring 7×10 cm. Note: the great vessels are displaced anteromedially.

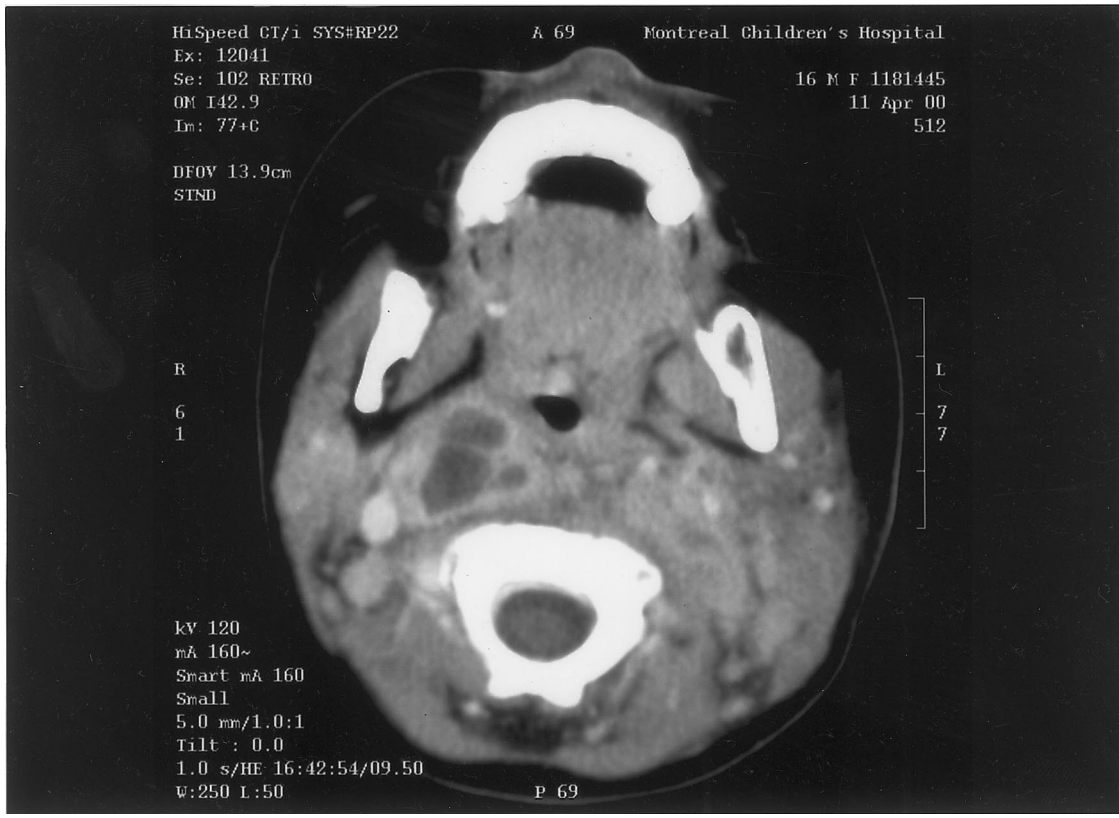

Fig. 2. Contrast-enhanced CT scan of the neck demonstrating a homogenous (septated) hypolucency with ring enhancement in the right parapharyngeal space, measuring 4×4 cm. Note: the great vessels are displaced laterally.

2. Discussion

In contrast to the retropharyngeal space, parapharyngeal space abscesses in the pediatric population are unusual. There have been few reported pediatric cases of bilateral parapharyngeal space abscesses, and none of sequential infections, as occurred in our patient. These uncommon infections should prompt a thorough search for an underlying etiology. This would include evaluation for anatomic anomalies, diabetes, and immunological/HIV disease. Imaging has a role as well in these patients. Computed tomography (CT) aids clinically in assessing the extent of infection, and determining the position of the great vessels if planning a surgical intervention. The clinical and radiological extent of the infection do not necessarily correlate. Additionally, as Sichel noted [1], the differentiation between deep neck space abscess and phlegmon or cellulitis by CT is frequently difficult. It is possible that our imaging underestimated the extent of the contralateral infection (second abscess), resulting in an antibiotic failure, despite appropriate, culture-directed coverage. Our decision to operate each time was, and should be, based on the patients clinical status, not the radiographic appearance of the infection.

Deep neck abscesses are most commonly mixed infections. Streptococci are the organisms most commonly cultured [2]. The trend at the Montreal Children's Hospital, as with many pediatric otolaryngology services, is to treat deep neck phlegmon/early abscesses in stable patients with a 24-h trial of intravenous antibiotics. Frequently clindamycin is the antibiotic of choice [3] because of its excellent coverage of all streptococci, most pneumococci, and penicillin-resistant staphylo-

cocci; as well as its important activity against anaerobes [4]. It has been recommended for recurrent Group-A streptococcal tonsillopharyngitis in the presence of penicillin failures [5]. Clindamycin, although chemically unrelated to the macrolides, has similar modes of action and spectra [6], inhibiting protein synthesis via binding to the 50 s subunit of bacterial ribosomes [7]. In the maximum recommended pediatric, intravenous dose of 16–20 mg/kg/day divided ('for more severe infections') [8], clindamycin is bacteriostatic, and there is often a 24–36 h elapse before a clinical response is noted. It is possible that abscesses as extensive as this patient's, may be too large or advanced for a bacteriostatic, or any intravenous agent, to be effective. An exhaustive review of the literature failed to locate abstracts addressing specifically the radiological extent of deep neck space infections, their location, and the effectiveness of intravenous antibiotics. Research into this area may someday influence treatment algorithms.

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