Salmonella Neck Abscess

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Abstract

Salmonella neck abscesses have rarely been reported in the world literature. Two patients with underlying diabetes mellitus developed deep neck abscesses which did not respond to empirical antimicrobials. Diagnosis of salmonella infection was made by culture of the discharge. Successful treatment was obtained by prescribing appropriate antibiotics and proper drainage.

Key word : Salmonella Infections, Neck Abscess, Diabetes Mellitus, Antibiotics, Drainage

CUTCHAVAREE A
J Med Assoc Thai 2002; 85: 388-391

Deep neck infections are usually caused by polymicrobial growth of streptococcus, Staph. aureus, gram-negative organisms and anaerobes[1-6]. Salmonella infections of the cervicofacial region are rarely observed. To the best of our knowledge there are only 16 cases reported in the world literature. We present 2 additional cases (Table 1, 2)[7-15].

CASES REPORT

Case 1

A 59-year-old Thai male, known case of diabetes mellitus for three years presented on October 28, 1999 with a left neck mass of one month's duration. The mass rapidly enlarged and the patient experienced low grade fever every evening.

A firm and well demarcated mass measuring about 10 cm in diameter was found occupying the left upper and midjugular region. Fine needle aspiration of the mass was undertaken and 0.3 ml of purulent discharge was obtained and sent for Gram's stain, acid-fast stain and cytology study. The Gram's stain disclosed a gram-negative rod with heavy pus cells.

Laboratory studies yielded the following values: hemoglobin, 13.3 g/dL; WBCs 14,500/μL, with 86.5 per cent neutrophils, 6.7 per cent lympho-

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Table 1. Reported cases of patients with salmonella neck abscess.

No	Source	Age/Sex	Predisposing condition	Size & location	Species of Salmonella
1	Dingley 1937	70/M	Osteomyelitis of adjacent spine	Bilateral, middle aspect of neck	Salmonella paratyphi
2	Black et al 1960	56/F	Adenocarcinoma (primary unknown)		Salmonella enteritidis
3	Wolfe et al 1971	63/M	Carcinoma of esophagus		Salmonella cubana
4	Seeliger and Kornmuller 1972	58/F	Tumor of neck with fistula	Lateral aspect of neck	Salmonella choleraesuis
5	Irmer et al 1976	No details			
6	Drow et al 1982	56/M	Diabetes mellitus	Left lateral aspect of neck	Salmonella typhimurium
7	Bello and Pien 1985	39/F	Diabetes mellitus	Right supraclavicular	Salmonella enteritidis (dublin)
8	Rosenberg et al 1985	69/M	Diabetes mellitus; chronic active hepatitis; cirrhosis	Right submandibular	Salmonella enteritidis
9	Christensen et al 1985	No details			
10	Shikani et al 1990	24/M	Diabetes mellitus	Right posterolateral aspect of neck	Salmonella enteritidis
11	Nathani 1991	35/F	Healthy	Sternocleidomastoid abscess	Salmonella virchow
12	Leiberman et al 1991	25/F	Pregnancy	Necrotizing cervical infection with deep neck abscess and internal jugular vein thrombosis, left sternocleidomastoid region	Salmonella paratyphi
13	Murray 1994	10/F	Healthy	Granulomatous cervical adenitis	Salmonella group B
14	Behr and McDonald 1996	25/F	β-Thalassemia major	Right submandibular	Samonella group D
15	Ray et al 1997	29/M	Diabetes mellitus	Left parapharyngeal space	Salmonella enteritidis
16	Lin et al 1999	51/F	Diabetes mellitus	Left submandibular abscess with internal jugular vein thrombosis	Salmonella typhimurium
17	Cutchavaree A	59/M	Diabetes mellitus	Left upper and midjugular region	Salmonella group E
18	Cutchavaree A	67/F	Diabetes mellitus	Right submandibular	Salmonella group D

Cases 1, 2, 3, 4, 6 are quoted from Shikani et al
Cases 5, 9 are quoted from Westblom & Gudipati

cytes, 6.6 per cent monocytes, 0.1 per cent eosinophils, 0.1 per cent basophils and adequate platelets. Urinalysis showed 2-plus protein, 3-plus glucose and 1-plus bacteria. Plasma glucose was 402 mg/dL. AntiHIV antibody was negative and VDRL was not reactive. Chest roentgenogram was normal.

The patient was treated with trimethoprim (80 mg) sulfamethoxazole (400 mg)(TMP-SMX) 2 tablets twice daily. He returned six days later, when aspiration of the mass was repeated and 0.5 ml of purulent discharge was obtained and sent for culture and sensitivity test. He was then treated with amoxicillin/clavulanate, 12 ū of regular insulin, incision and drainage of the abscess. Fifty milliliters of purulent discharge was found confining the posterosuperior to the left sternocleidomastoid muscle. Culture of the discharge disclosed Salmonella group E which was sensitive to ampicillin, ampicillin/sulbactam, amoxicillin/clavulanate. TMP-SMX, cefazolin, ceftazidime, cefixime, gentamicin, imipenem and meropenem. The patient was then treated with amoxicillin/clavulanate, daily irrigation and dressing. He responded well to treatment and the wound gradually healed.

Case 2

A 67-year-old Thai female, known case of diabetes mellitus presented on December 19, 1999 with a slow growing mass on the right side of the neck of 10 days' duration. A firm and well defined mass with slight tenderness, measuring about six cm in diameter was found confined to the right submandibular region. Aspiration of the mass was undertaken and a small amount of purulent discharge

Table 2. Previous reported cases of patients with salmonella thyroiditis/abscess.

No	Source	Age/Sex	Predisposing condition	Size & location	Species of Salmonella
1	Brenzier A 1951			Thyroid abscess	
2	Van Heerden and O'Connell P 1971			Acute suppurative thyroiditis	Salmonella enteritidis
3	Svenungsson B and Lindburg A 1981			Acute suppurative thyroiditis	
4	Walter R and McMonagle J 1982		Apathetic thyrotoxicosis, follicular carcinoma	Suppurative thyroiditis	
5	Conrad 1985		No details		
6	Gudipati and Westblom 1991			Thyroid abscess	
7	Westblom and Gudipati 1997			Thyroid abscess	Salmonella typhimurium

was obtained and sent for Gram's stain and culture for aerobic bacteria. Gram's stain disclosed many white blood cells without any microorganisms.

The patient was treated with cephalexin but did not respond. The result of the culture obtained later revealed heavy growth of Salmonella species which were sensitive to ampicillin, amoxicillin/clavulanate, ampicillin/sulbactam, TMP-SMX, cefazolin, cefoxitin, cefuroxime, cefotaxime, ceftazidime, ceftriaxone, cefpirome, imipenem, meropenem, gentamicin, netilmicin, amikacin, ciprofloxacin, norfloxacin and chloramphenicol. Widal test using the tube test was positive at 1 : 160 for Gr. DOAg. Stool examination for salmonella was negative.

Cephalexin was then replaced by amoxicillin/clavulanate and incision and drainage of the abscess was then performed followed by daily irrigation and dressing. The patient responded well to treatment and the wound healed without any complications.

DISCUSSION

Deep neck abscesses are usually caused by streptococcus, *Staphylococcus aureus*, gram-negative organisms and anaerobes. In an immunocompromised patient other uncommon organisms may be encountered[1,4-6,16].

Salmonella infections of the cervicofacial region are rarely observed. Previous literature reports included 16 patients with neck abscess, seven patients with thyroiditis and thyroid abscesses, a case with a parotid abscess, and a case of facial infection following a dog bite. Most previous reported cases had predisposing causes including six patients with diabetes mellitus as well as the two presented patients[7-15].

Salmonella infection should be considered in immunocompromised patients with deep neck infection who are unresponsive to empirical antimicrobial use. Effective therapy includes early diagnosis, control of underlying diseases, administration of appropriate antimicrobial and proper drainage. Culture and sensitivity tests profoundly influence the initiation of the proper antimicrobial and prevent severe complications[7,9].

Conventional antimicrobials for treatment of salmonella infections include ampicillin, chloramphenicol and trimethoprim-sulfamethoxazole for at least two weeks. However, there has been a trend to use the third generation cephalosporins as an alternative antibiotic[7,17,18]. Both of the presented patients responded well to amoxicillin/clavulanate and surgical drainage.

SUMMARY

Two patients with underlying diabetes mellitus presented with deep neck abscesses which did not respond to empirical antimicrobials. Diagnosis of salmonella infection was made by culture of the discharge. Successful therapy was obtained by using the appropriate antibiotics combined with proper drainage.

(Received for publication on October 18, 2001)

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ฝีในส่วนลึกของลำคอจากเชื้อซัลโมเนลลา

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ฝีในส่วนลึกของลำคอมักเกิดจากเชื้อแบคทีเรียผสมทั้งกรัมบวกและกรัมลบ รวมทั้งแอนแอโรบ การติดเชื้อบริเวณลำคอจากเชื้อซัลโมเนลลาพบได้น้อยมาก อย่างไรก็ตามในผู้ป่วยที่มีภูมิคุ้มกันต่ำ การติดเชื้อดังกล่าวอาจเกิดขึ้นได้ และแพทย์ผู้รักษาควรนึกถึงเชื้อต่าง ๆ ที่ไม่พบบ่อย รวมทั้งเชื้อซัลโมเนลลา ในรายที่รักษาด้วยยาต้านจุลชีพตามปกติแล้วไม่ได้ผล การวินิจฉัยโรคดังกล่าวต้องอาศัยการเพาะเชื้อเป็นสำคัญ และการรักษาที่ได้ผล คือการวินิจฉัยโรคที่รวดเร็ว การควบคุมโรคประจำตัวร่วมกับการให้ยาต้านจุลชีพที่เหมาะสม และระบายหนอง

คำสำคัญ : การติดเชื้อซัลโมเนลลา, ฝีที่คอ, โรคเบาหวาน, ยาปฏิชีวนะ, การระบายหนอง

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จดหมายเหตุทางแพทย์ ฯ 2545; 85: 388–391

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