รายงานผู้ป่วย

Intrathoracic complications of Ludwig's angina

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A 26-year-old Thai male was afflicted with Ludwig's angina, caused by Alpha-streptococcus, non-hemolytic streptococcus group D. and anaerobic Bacteroides fragilis organisms. The infection had rapidly spread through the deep neck spaces into the mediastinum, both pleural cavities and into the pericardial space. He was successfully treated by adequate surgical drainage and appropriate antibiotics.

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ผู้ป่วยชายไทยอายุ 26 ปี มีการติดเชื้อของเนื้อเยื่อบริเวณพื้นปาก (Ludwig's angina) จากเชื้อ Alpha-streptococcus, non-hemolytic streptococus group D. และ anaerobic Bacteroides fragilis การอักเสบลุกลามอย่างรวดเร็วเข้าสู่เนื้อเยื่อบริเวณคอ ช่องอก ช่องปอดสองข้าง และช่องรอบหัวใจ โรคแทรกซ้อนดังกล่าวพบได้ไม่บ่อยนัก ผู้ป่วยได้รับการรักษาด้วยการผ่าตัดระบายหนองออกจากช่องต่าง ๆ บริเวณคอ และในทรวงอกร่วมกับการให้ยาปฏิชีวนะที่เหมาะสม ผลการรักษาผู้ป่วยหายเป็นปกติ

Ludwig's angina is a phlegmon or an abscess of the submandibular, submental and sublingual spaces[1], Although the incidence of intrathoracic complications from this infection is low, awareness of their occurence is advised due to the high morbidity and mortality associated with them[2,3].

We present a case of Ludwig's angina secondary to odontogenic infection which spread rapidly through the cervical fascial planes into the mediastinum, pleural and pericardial cavities. Early recognition and vigorous treatment with appropriate antimicrobial agents accompanied with adequate surgical drainage leading to a successful outcome.

Report of a case

A 26-year-old healthy Thai male was seen on January 13, 1990 with a five days' history of increasing toothache located at the right lower last molar. Physical examination revealed the patient to be febrile, with dental caries of the right lower second and last molars with oozing of purulent discharge, and swelling of the right submandibular fossa. He was treated with intramuscular phenoxymethyl penicillin 1 gm. twice daily and oral penicillin 400,000 units four times a day.

He did not respond to the treatment and returned two days later with slight trismus and marked swelling of the right submandibular and submental regions. There was also subcutaneous emphysema of the right submandibular region. The anterior floor of the mouth was swollen and the tongue was elevated. Some pus was seen oozing from the gingiva around the right lower last molar. His voice had the characteristic of "hot potato" but physical examination of the larynx and hypopharynx were normal. His lungs were clear on auscultation. Heart rate was increased but the rhythm was normal, and there was no gallop, pericardial rub or murmur.

Laboratory findings revealed the hemoglobin of 14.4 gm%; wbc 10,300/mm^3 with 78% polymorphs, 20% lymphocytes, 1% monocytes and 1% eosinophils. Roentgenography of the lateral view of the soft tissue of the neck showed swelling of the submental and submandibular regions with demonstration of free air in the soft tissue (Fig. 1). Chest films were normal.

The patient was admitted to the department of Otolaryngology, Chulalongkorn Hospital with the diagnosis of Ludwig's angina. He was then treated with intravenous penicillin at the dose of 2 million units every six hour, chloramphenicol 1 gm. every six hour and gentamicin 80 mg. every eight hour. Surgical drainage of the right sublingual and submandibular spaces were performed immediately after admission. Small amount of the purulent discharge was obtained and the specimen was sent for culture and sensitivity tests. The following day the swellings over the submental and submandibular spaces decreased but the swelling of the anterior neck down to the root of the neck and subcutaneous emphysema had increased (Fig. 1). Electrocardiography showed an elevation of S-T segment. Chest film showed widening of the superior mediastinum (Fig. 2). Diagnosis of superior mediastinitis from extension of the deep neck infection was made. Blunt dissection of parapharyngeal, visceral and retropharyngeal spaces combined with drainage of the superior mediastinum via the transcervical approach was performed and drainage tubes were inserted throught those spaces. The patient was placed on clindamycin 600 mg. intravenously every six hour and penicillin G 12 million units daily. Endotracheal tube respirator were maintained.

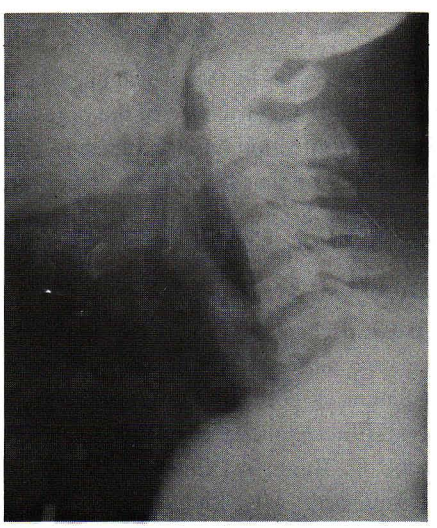

Figure 1 Soft tissue of neck one day following incision and drainage demonstrated free air in retropharyngeal and pretracheal spaces.

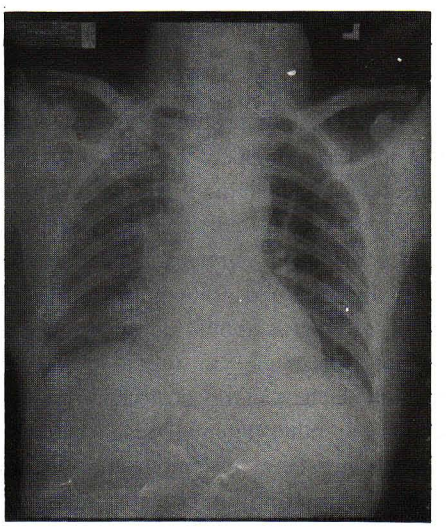

Figure 2 Chest film shows widening of the superior mediastinum.

The follow-up chest films on the next day showed haziness of the right side of the chest. The patient was diagnosed as having right pleural empyema and a chest drain was inserted (Fig. 3). Echocardiography showed slight effusion of the periocardial space. Intravenous penicillin was discontinued and amikacin 500 mg. twice daily was administered. His condition deteriorated with increased left pleural empyema and more pericardial effusion developed. On the following day a chest drain was inserted into the left pleural cavity and the periocardial window was performed. Culture of the discharge obtained from the neck abscesses yielded mixed infection of Alpha-streptococcus, non-hemolytic streptococcus group D. and non enterococci. Pleural fluid disclosed anaerobic Bacteroides fragilis and Alpha-streptoccus but not group D, however the pericardial fluid yielded no growth.

The patient continued to have persistent fever and purulent discharge, so bilateral decortication and revision of mediastinal drainage were performed on the tenth day in hospital. He gradually recovered and was discharged in good condition after 46 days of hospitalization.

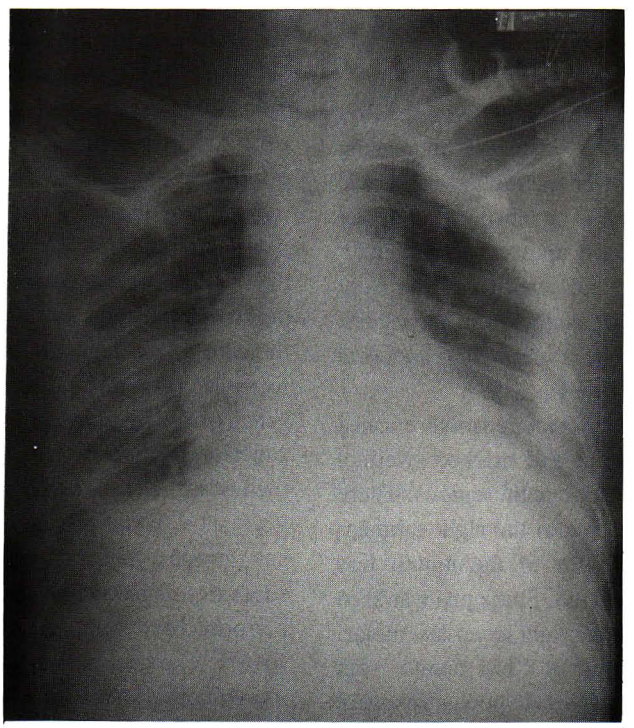

Figure 3. Chest film two days following transcervical mediastinal drainage showed bilateral pleural effussions and cardiomegaly.

Discussion

Ludwig's angina should be treated aggressively with appropriate broad-spectrum antimicrobial agents that cover anaerobic and both gram positive and gram negative aerobic organisms, normally found in oral infection such as streptococci, Staph. aureus and anaerobic bacteroides group.[6-8] Incision and drainage of the submandibular and sublingual spaces should be undertaken as soon as the diagnosis is made, in order to prevent further complications such as airway obstruction and rapid spread of infection into other potential deep spaces of the neck. Even though, intrathoracic complications are uncommon, they may occur from inadequate treatment and the virulence of the organisms[9]. In our case, appropriate antimicrobial agents were administered but early drainage of the parapharyngeal, visceral and retropharyngeal spaces were not adequately performed. Such inadequate drainage accompanied with the virulence of the organisms caused extension of the infection into the superior mediastinum, both pleural and pericardial spaces, which necessitated more radical surgeries.

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