Unstable Occult Cervical-Spine Fracture

Recognition of injuries to the cervical spine is of critical importance. Such injuries may be difficult to recognize in patients who have an altered level of consciousness or other significant injuries. We present the case of an alert ambulatory patient with no complaint of neck pain, no tenderness of the neck on physical examination, and no history of trauma who, while being evaluated for fever, was found to have an unstable cervical-spine fracture that was not present on radiographs done one year earlier. [Mace SE: Unstable occult cervical-spine fracture. Ann Emerg Med December 1991;20:1373-1375.]

INTRODUCTION

The importance of the initial evaluation and management of cervical-spine injuries is well recognized. The occurrence of the occult cervical-spine fracture has been documented and discussed in the literature. Recently, however, the concept of the silent cervical-spine fracture has been challenged. Various studies have questioned the occurrence of occult cervical-spine fractures in alert patients without neck pain.

Although there have been reports of trauma patients with an intact mental status presenting with few signs and symptoms of neck trauma who had significant cervical-spine injury, we are unaware of any detailed case reports of an alert patient with no symptoms or signs of neck trauma and no history of antecedent trauma who sustained significant injury to the cervical spine. We present the case of such a patient.

CASE REPORT

A 51-year-old man complained of a sore throat, difficulty swallowing, spitting up saliva, and shortness of breath for one day. He had a history of seizures and alcohol abuse. His medications were phenytoin and phenobarbital. Paramedics noted rales and rhonchi bilaterally with a blood pressure of 160/98 mm Hg, pulse, 120, and respirations, 28, so an IV line was started and the patient received 40 mg furosemide IV. In the emergency department vital signs were blood pressure of 138/60 mm Hg, pulse, 100, respirations, 24, and temperature, 36 C. The patient was alert, oriented, and answering questions; had class I level of consciousness (Glasgow Coma Score of 15); and was not intoxicated or under the influence of drugs or alcohol at the time he was seen. Physical examination revealed an alert, oriented times three man frequently spitting up "clear-appearing, salivallike secretions." His tonsils were enlarged with a white exudate. The neck was supple and nontender with a few small anterior lymph nodes. The lungs had scattered bibasilar rales. The abdomen was benign. Neurologic examination, including mental status, sensory, motor reflexes, gait, and strength, was unremarkable.

Laboratory data were WBC count of 13,700 with 77% neutrophils, 12% lymphocytes, and 9% mononuclear cells and a hematocrit of 43.1. The throat culture grew normal flora with β-hemolytic Streptococcus, not group A. The sputum culture grew normal flora with Hemophilus parainfluenza. The blood culture was no growth.

An otolaryngology consult was obtained. Indirect laryngoscopy was done that noted "tonsilar enlargement right greater than left, with tonsillitis, unable to fully exclude peritonsillar abscess." A chest radiograph showed...
"clear lung field." Soft-tissue neck films were done to rule out epiglottitis and a peritonsillar abscess. According to the official attending radiology report, "the epiglottis was normal with some fullness in the subglottic soft tissues, marked degenerative changes in the cervical spine with large osteophytes, and odontoid fracture of the type II variety at its base with anterior subluxation of the arch of C1 on C2 of approximately 1 cm" (Figures 1 and 2).

Cervical-spine immobilization was done. Repeat cervical-spine films were obtained (anteroposterior, lateral, and oblique). Odontoid views could not be obtained because of the patient's uncooperativeness. These films were read by the attending radiologist as "the alignment appears improved when compared to the prior study. A freely subluxing base of odontoid fracture. The alignment at this time appears normal" (Figure 3).

Treatment included 2.4 million units bicillin IM, cervical-spine immobilization, and transfer to the spine center.

The patient was admitted to the neurosurgery spine service at the tertiary referral hospital. He was placed in cervical traction and then underwent fusion of C1-2 with a bone graft. Four months later, he was neurologically intact and doing well, although he was still hospitalized.

The final diagnosis was acute tonsillitis, possible peritonsillar abscess, unstable fracture-subluxation of C2, and status post cervical-spine fusion at C1-2 with a bone graft.

**DISCUSSION**

The detection and management of cervical-spine injuries are of critical importance in the ED. The occurrence of the silent, or occult, cervical-spine fracture has been documented in various case reports and clinical studies or series of patients during the years.

In our patient, the unstable fracture-subluxation of the odontoid was discovered incidentally during evaluation for fever and possible epiglottitis. The patient had no complaints of neck pain and no pain on palpation over the cervical spine or neck. He denied any history of trauma. Furthermore, a skull and cervical-spine series done one year earlier documented a normal cervical spine so that a congenital anomaly or trauma occurring years earlier, perhaps as a child, was not a possibility.

Our case supports the reports of others that significant cervical spine injury can exist without symptoms (complaints of neck pain) and signs (pain or tenderness on palpation of the neck) of neck injury and even without a history of trauma.

As many as one third of patients with proven cervical-spine injuries may have no complaints of neck pain. Furthermore, a significant number will have a "normal neck examination" without pain on palpation of the neck.

In a series of patients with cervical-spine fractures, a small percentage had no antecedent history of trauma. Our case also demonstrates that no history of trauma may be elicited, yet two of their patients as well as our patient had documented unstable cervical-spine fractures.

Although in today's cost-conscious society some have advocated various indications for obtaining cervical-spine radiographs, our report indicates that the unstable occult cervical-spine fracture can exist and that, as suggested by many physicians, we need to maintain a high index of suspicion, especially in high-risk patients.

**SUMMARY**

Our case supports the reports of others that significant cervical-spine injury can exist without symptoms (complaints of neck pain) and without signs (pain or tenderness on palpation of the neck) of neck injury and even without a history of trauma.
REFERENCES