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RED ALERT! RED ALERT! RED ALERT!

by William C. Collins, M.D.

From time to time, your claims committee at MAG Mutual Insurance Company sees the benefit of communicating with our fellow physicians when we notice changes in patient safety and claim activity involving certain practices and/or diagnoses. The purpose of this communication is just such an issue and involves anyone who may or may not be called upon to participate in the diagnosis or care of those people with neck or back injuries. This includes, of course, emergency medicine physicians, family medical practitioners, radiologists, internists, orthopaedists, neurosurgeons and anyone else who may consult upon those with injured or claims of injury to their spine. The following cases are real, but the circumstances have been altered to protect the confidentiality of both claimant and defendant.

CASE #1

This is a 45-year-old male who was involved in a severe automobile accident and sustained open fractures of the lower extremities including both ankles and knees which required immediate and continuing treatment by the physicians involved. Films were made of the patient's neck at a referring hospital, but were not considered adequate by the physicians who received him on referral, and they asked for additional films. Additional films were obtained at the reference hospital and read by the hospital radiologist as well as the treating

orthopaedist. The spine was "cleared for surgery." Anesthesiologists were aware of a slight neck injury, but took no special precautions in intubation. The patient was ambulated and mobilized immediately following surgery and over the ensuing two days developed quadriplegia. Repeat films and MRI scans showed a dislocation of C7 at T1.

CASE #2

This 45-year-old male was admitted to the Emergency Department in an intoxicated condition. He was very belligerent and non-cooperative and was nonspecific in pain complaints. It had been alleged that he had either fallen or had been traumatized in some way involving his neck. X-rays were performed of various structures and were considered to be normal. The patient was discharged, still in a semi-drunk state, to the family who reportedly tossed him into the back seat of an automobile. The family brought him back approximately three hours later totally quadriplegic. Repeat films showed an unstable fracture dislocation at C6/C7.

CASE #3

This is a 40-year-old cerebral palsy patient who reportedly fell down a flight of steps. He was admitted to the Emergency Department, but was unable to communicate adequately with the personnel. He was ambulatory prior to the fall.

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Risk Management Techniques to Avoid Liability Associated with Misdiagnosis of Spinal Fractures

In the United States, approximately 4000-5000 people annually become quadriplegic secondary to cervical spine trauma. Motor vehicle accidents account for greater than 50 percent of all spinal traumas. Cervical spine fractures are four times as frequently seen in men than in women, and 80 percent of the patients are between the ages of 18-25.

Several areas have been identified as common pitfalls for litigation involving misdiagnosis of spinal fractures. These areas include **inadequate immobilization, inadequate diagnostic studies, lack of complete serial neurological evaluations and lack of documentation of the sequence of events.** The purpose of this article is to bring those specific pitfall areas to your attention.

1. The major principal that governs the management of both potential and confirmed cervical spine injuries is spinal immobilization. **Failure to adequately immobilize the spine when the mechanism of injury is consistent with this diagnosis has been identified as a medical legal pitfall.**

Many spinal cord injury patients are victims of public health problems such as drunk driving, assaults and alcohol or drug abuse. Agitated patients are difficult to manage appropriately, but still require the same level of care and immobilization. Pharmacological restraint may be required to allow proper assessment and restraint. The most significant legal risk for emergency medicine practitioners, faced with a cervical spine injury case, is exacerbation of the injury that the patient actually received from the traumatic event. "This can occur through (1) failure to diagnose a spinal injury, permitting it to become a spinal cord injury; (2) failure to immobilize; or (3) inadequate immobilization."¹ **Drunken patients can still have real injuries.** It is essential that immobilization is continuous from the scene of the accident, in transport, in the hospital, until a cervical spine injury can be excluded. "Patients in which spinal malalignment is identified should be placed in skeletal tong traction as soon as possible (with very few exceptions), even if there is no evidence of

neurologic deficit."² Many cases involving allegations of failure to adequately restrain are deemed indefensible due to a lack of documentation of the immobilization as well.

Delay in diagnosis has been recognized as a common allegation of plaintiff's with spinal cord injuries. This is often associated with unsuspected cervical spine injuries and subsequent movement by the patient when they should have been immobilized. Some of the specific causes of delay were "the presence of a head injury, a decreased level of consciousness, inadequate roentgenograms of the lower part of the cervical spine, alcoholic intoxication and multiple injuries."³

2. **Clinical evaluation of the cervical spine in blunt trauma is generally unreliable in most patients. Due to this limitation and the potential catastrophe associated if missed, patients who present with blunt trauma to the emergency department must undergo radiological evaluation.**

There are several groups of trauma patients that must undergo a radiographic evaluation of the cervical spine. These groups include: patients who show neurological deficits consistent with cord lesion, patients with an altered sensorium due to head injury or intoxication, patients who complain about neck pain or tenderness, and patients who do not complain about neck pain or tenderness, but have significant distracting injuries.⁴

According to the American College of Surgeons, **"The absence of neurological deficit or pain does not rule out injury to the cervical spine. Such injury should be presumed until ruled out by adequate roentgenographic examination."** The American College of Surgeons also recommends that the emergency physician, in all cases of spinal injury, seek a neurosurgical consultation and that an early consultation with a neurosurgeon and/or orthopedic surgeon is essential once it is established that a spinal injury exists.⁵ Again, documentation regarding the consultation is essential in being able to show later, if necessary, the sequence of events that transpired.

3. **Incomplete x-rays (e.g. failure to fully visualize the C7-T1 junction on the cervical spine or failure to have films that have ADEQUATE QUALITY to put in front of a jury)** are common in missed injuries. According to American College of Radiology Standards for Communication: the Radiologist should, when appropriate, make the exam nondiagnostic. When appropriate recommend follow up and additional studies to clarify or confirm impression. If urgent or significant findings, radiologists should communicate directly with the referring physician who will be providing clinical follow-up. Documentation of actual communication is appropriate. Any significant discrepancy between Emergency Department or preliminary report and final report should be promptly reconciled by direct communication with the referring M.D.⁶

Failure to interpret the x-rays correctly is another area identified as a potential pitfall. Subtle findings on the cervical films such as increased prevertebral soft tissue swelling or widening of the C1-C2 predontoid space are examples of potentially unstable cervical spine injuries that could be disastrous if not picked up by the physicians involved in the patient's care. In many emergency departments, radiology support is limited. If unsure, demand a formal interpretation or immobilize the patient appropriately, pending formal review of the studies.”⁷

The standard trauma series is composed of five views: The lateral view, **swimmer's view**, oblique views, odontoid view and anteroposterior view. Most importantly, if there is failure to fully visualize all seven cervical vertebrae or the cervicothoracic junction in a true lateral film, the swimmer's or transaxillary view fills this void and will expose these areas. **The failure to fully visualize has resulted in patient morbidity and successful malpractice litigation against emergency physicians.**

CT scanning in spinal cord injuries is recommended if there are inadequate plain films, suspicious/indeterminate abnormalities on x-ray, or identified fractures or displacement on x-ray for which CT scan will provide better visualization of the extent and displacement of fracture.

4. **A careful neurologic assessment is required to document the level of injury. Serial evaluations are recommended for progression.** Associated head injury occurs in about 25 percent of spinal cord injuries. The purpose of the neurologic assessment is to determine neurologic status and the presence of any deficit in neurologic function that would indicate damage to the nervous system. **It is extremely important that the neurologic baseline assessment is recorded in the emergency department record to confirm that the injury and not the subsequent medical care resulted in any resulting neurologic deficit. Thorough record keeping, while always important in the defense of a medical malpractice case, is of profound importance in these cases especially when the plaintiff's damages are for phenomenal sums of money.**

Risk management techniques should be a focus for every physician treating patients with possible cervical spine fractures or spinal cord injuries. With adequate immobilization, appropriate radiologic evaluations, serial neurological evaluations and the associated documentation to show the sequence of events, we would decrease the exposure of all physicians involved with the care and treatment of these patients. A strong awareness of a potential cervical spine injury, in combination with adequate immobilization, complete visualization of the spine and a thorough, documented neurological exam, are your protection against being involved in the increasing astronomical settlements and/or verdicts associated with missed cervical spine injury patients. ●

¹ Lucas, Carol K. J.D., Cervical Spine Injury. Standards of Care In Emergency Medicine. 19; 8:1-8:22.

² Belaval, Emilio. M.D., Roy, Simon. M.D. Cervical Spine Fractures. Emergency Medicine pg.13; 1-22.

³ Lucas, Carol K. J.D., Cervical Spine Injury. Standards of Care In Emergency Medicine. 7; 8:1-8:22.

⁴ Belaval, Emilio. M.D., Roy, Simon. M.D. Cervical Spine Fractures. Emergency Medicine pg. 10; 1-22.

⁵ Lucas, Carol K. J.D., Cervical Spine Injury. Standards of Care in Emergency Medicine. 5; 8:1-8:22.

⁶ American College of Radiology Standards, Communication: Diagnostic Radiology. Revised 1995.

⁷ Schreiber, Donald. M.D., CM, FRCP(C), FACEP, Research Director, Assistant Professor of Surgery, Division of Emergency Medicine, Stanford University School of Medicine. Emergency Medicine pg.14, 1-16.

X-rays were made of the cervical and thoracic spine, and he was reported as sustaining a cervical strain. He subsequently was discharged home and readmitted several hours later totally quadriplegic associated with an unstable fracture of C7.

DISCUSSION: All of these cases are amenable in the basic fact in their management procedure. Films were taken of the area in question or suspected area of question, but the physicians ranging from neurologists to neurosurgeons, emergency department physicians, radiologists and orthopaedists involved in the care accepted less than the best as far as visualization of the total cervical spine, including C7/T1. All three of these cases basically represented normal neurologically-involved patients who, by virtue of the instability of their fractures/dislocations, were allowed to deteriorate to the point of quadriplegia.

Most of these cases involve an alleged missed fracture due to inadequate diagnostic studies. The need is for adequate and clearly visible x-rays, either standard or “swimmer’s views,” CT or MRI scans if no other means are available for adequate visualization. This is clearly needed and necessary. The patient’s failure to cooperate, other ancillary diagnoses or inadequacy of equipment is no longer a fallback position in assessing claims.

Roy Vandiver, M.D., Chairman of the Board of MAG Mutual and an experienced neurosurgeon, has commented many times that those of us involved in

the care of a spine patient, where this type of injury may be overlooked, can only accept an x-ray or scan that clearly demonstrates the absence of abnormalities. In his words, “If you can’t be happy with it in the courtroom two years from now, you can’t be happy with it in the emergency department, on the floor or in the operating room.” Patient safety is of utmost importance to those we serve, the benefit of which is reduced liability exposure.

These cases either represent large loss payments by your company or potential losses to the company from a financial sense. Of course, they also represent a quagmire of regret by the physicians involved who know of the personal tragedy brought on by quadriplegia in what is a preventable injury. The physicians on the claims committee at MAG Mutual Insurance Company want to do more than just simply protect the company. All of us want the best outcomes for our patients; clear, acceptable x-rays best serve to insure patient safety.

By alerting you and reinforcing the need for adequate studies before clearing the cervical and thoracic spine, we want to help prevent patient injury and the miseries of a lengthy lawsuit both for the patient and for the physician. This is a problem where we definitely can improve our care by awareness and diligence.

To paraphrase a famous commercial, “WE WILL CLEAR NO SPINE UNTIL THE IMAGES ARE FINE.” ●

MAG Mutual does not presume to establish any standard of care or establish rules for the practice of medicine. The particular patient-care strategies or range of patient-care strategies mentioned in this newsletter should be tempered by the physician’s judgement.

This publication is produced to inform you of issues relating to medical professional liability insurance and other matters of importance to hospitals and physicians. Material given in this newsletter does not constitute legal advice or opinion. If you have any questions in any of the areas discussed in this publication, you should seek a qualified legal opinion.

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