Correspondence

OCCULT CERVICAL SPINE FRACTURES—A MISSTATED CONCEPT

To the Editor—The recent article by Dr Mace in The American Journal of Emergency Medicine revisits a controversial and important subject. However, we think the article only restates the erroneous concept of the “occult cervical spine fracture” and demonstrates some problems in written form, content, and academic ethics that we would like to address.

The article, as well as a number of previously cited references, continues the use of the ill-defined and vague term “occult” cervical spine fracture. Previous reports have applied the term “occult” to fractures that occurred in patients in whom the examining physicians were surprised to find the presence of a fracture. On review of these reports, some of this surprise may only have been engendered by initially inadequate examination or documentation of findings consistent with a cervical spine fracture in each case. Other investigators have applied the term “occult” to mean “asymptomatic” fracture, although not necessarily correlating the simultaneous presence in the same case of physical examination signs (ie, tenderness) of fractures found in patients who had altered mental status due to drugs, alcohol, and head trauma. In some of these cases the patient was described as “awake, alert, and oriented” but clearly had conditions that gave them altered pain perception. Being “awake, alert, and oriented” is not always equivalent to having a normal sensorium. Additionally, simply delayed presentation after the time of injury has been categorized as representing an “occult” cervical fracture. The review by Dr Mace cites articles using all of these different meanings of “occult” fractures.

To avoid the continued use of the ill defined and misleading term “occult cervical spine fracture,” we feel a clarified definition of “occult cervical fracture” is needed. Thus, we think an appropriate definition of “occult cervical fracture” is a fracture occurring in a patient with a normal sensorium (no pre-existent brain injury, concurrent head trauma, or intoxication from drugs or alcohol), no symptoms of cervical injury (no complaint of pain or subjective change in neurologic function), no tenderness over the cervical spine and the remainder of the neck, no palpable acute deformity of the neck, and no neurologic findings consistent with bony or ligamentous injury to the cervical spine. This clarified definition of “occult fracture” is more precise and detailed than the term “asymptomatic cervical fracture.” An asymptomatic patient (ie, one who does not have neck pain or does not notice neurologic symptoms) may still have a cervical fracture but would manifest either physical examination findings (ie, signs) and/or have altered pain perception (from brain injury, drugs, alcohol, etc), which would mask the other signs and symptoms of cervical fracture.

Table 1 shows all the cases cited in Dr Mace’s article as “occult cervical fractures;” we have listed the clinical features of each case that would have raised suspicion for the presence of a cervical fracture prior to confirmation by x-ray. Of the entire list of cases only two would actually meet our clarified definition of “occult cervical fracture” (ref 9 and the first case on page 513 of ref 7) as only these two cases apparently did not have any symptoms or signs of cervical injury in patients with normal mental status. (However, the degree of documentation of both of these cases was poor.) prospectively studied series of neck injuries have not shown any occurrence of truly “occult” cervical fractures corresponding to our definition criteria.

The case presented as a “new” case of “occult cervical spine fracture” by Dr Mace in her review article is not a truly “occult” fracture. The patient presented with severe pharyngeal pain and proved to have a type II odontoid fracture. Since the odontoid is only a few millimeters away from the posterior pharynx, pain from this fracture can certainly be felt in the posterior pharyngeal region. Therefore, based on this fact alone the patient was not “asymptomatic” for possible cervical spine injury. Further, the patient had a history of severe alcohol abuse and seizures, and thus could have suffered “unremembered” neck trauma at some indeterminant time prior to presentation. In the original report of this same case, the patient was described as having a “normal mental status” and yet apparently was too uncooperative to even have an odontoid radiograph performed. An additional unsettling aspect of this case is that the patient was still hospitalized 4 months after his surgical procedure to treat the fracture, but was described as “doing well.”

We think there are significant problems in the composition and structure of Dr Mace’s article. One of the radiographs labeled “normal cervical spine” clearly reveals marked degenerative joint disease, a fractured osteophyte, and angulation of the posterior vertebral body line at the C-2 level. Dr Mace cites reference articles multiple times in the same paragraph when clearly discussing the same article or case. In the reference list at the end of the article several references that are cited in the same fashion as journal articles turn out to be abstracts or letters to the editor. We think it is important in a reference list for an author to clearly denote (and in fact this is part of the manuscript submission policy of most journals) letters to the editor and abstracts. Since the prepublication review and scrutiny and detailed information provided in abstracts and letters to the editor is usually less than in full articles accepted.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Cases Reported</th>
<th>Characteristics (See Key)</th>
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<tbody>
<tr>
<td>Thambyrajah</td>
<td>1, 3, 4, 5</td>
<td>1 (blood ETOH, 300 mg/100 dl), 2</td>
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<tr>
<td>Bresler and Rich</td>
<td>1, 4</td>
<td>1</td>
</tr>
<tr>
<td>Haines</td>
<td>2, 3, 4, 5</td>
<td>4</td>
</tr>
<tr>
<td>Lieberman and Maitl</td>
<td>6, 7, 8, 11, 12</td>
<td>6, 7, 8, 9, 10, 11, 12</td>
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<tr>
<td>Walter et al</td>
<td>1, 2, 3, 4, 5, 6, 7</td>
<td>1, 2</td>
</tr>
<tr>
<td>Williams et al</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12</td>
<td>1, 2, 3 (and possibly 2)</td>
</tr>
</tbody>
</table>

Key: 1, intoxicated; 2, intracranial injury; 3, neck pain; 4, neck tenderness; 5, neurologic signs.

611
for publication, the material in these sources is generally regarded as less reliable than in peer-reviewed journal articles.

In reviewing Dr Mace's reference list we found 10 significant errors in the journal issue number, page number, or author's name, which made it very difficult to find the articles cited. The corrected references are included in the reference list presented here.9-12,20 We think the number of mistakes in this reference list indicates that references should be more carefully proofread prior to being included in journal publications.

Finally, we feel the practice of duplicate reporting of the same information in two journal articles warrants comment. Dr Mace presented the same case in a previous article with a very similar (although less extensive) discussion of its ramifications in the *Annals of Emergency Medicine* in December 1991.9 Taking up space in two journals describing the same case presumably resulted in another article presenting new information to emergency physicians to be rejected in its place. In the *American Journal of Emergency Medicine*, Dr Mace performs the ultimate in circular logic in quoting her own previous case report (the *Annals of Emergency Medicine* article) 20 times as "background evidence" for the very same case.

We have found Dr Mace's article to be so flawed that we are using it as a focus for discussion with our residents and fellows on how not to write an article for a national journal. In addition, we are also using it in our discussion of academic ethics with residents and fellows to demonstrate duplicate reporting in different journals of the same information.

Our summary points are as follows: (1) cases of cervical spine fracture should not be labeled "occult" unless a proper history and examination have been performed and documented, the patient has a normal mental status and pain perception, and there are no signs or symptoms consistent with cervical spine injury; (2) vigilance must be maintained in reviewing reference lists for published articles; and (3) citing a case report as a reference for itself is invalid.

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References

*Denotes references with errors in citation in Dr Mace's article.

2. Thambiyyah K: Fractures of the cervical spine with minimal or no symptoms. Med J Malaya 1972;26:244-249

THE UNSTABLE OCCULT CERVICAL SPINE FRACTURE

To the Editor—I am writing in response to an article by Mace recently published concerning occult cervical spine fracture.1

I agree with the author that cervical spine injury can at times be subtle and that the indications listed in Table 1 of that paper are reasonable. Use of such indications, however, does allow careful clinicians to decrease the number of patients who receive cervical x-rays. I am concerned that some of the text was misleading and overstates the occult nature of such injuries.

Concerning the paper cited from the *Medical Journal of Malaysia*,2 Mace states that "of four cases of occult cervical spine fracture, all four patients were awake, alert, nonintoxicated, ambulatory, and had no neurologic deficits." I think it is misleading that Dr Mace did not point out that all four patients also had complaints of pain. In case no. 1 the patient admitted to "a few drinks" and had pain when he was positioned for a lateral skull x-ray. It is also noted that on examination he had tenderness to deep palpation. The second patient had "severe pain on the right side of the neck associated with stiffness." The third patient had "pain in the neck of the upper part." The final patient had "pain and stiffness of the neck . . . and pain aggravated by movements of the neck."2

Dr Mace characterizes Haines' case reports3 in a misleading way as well. The first patient is characterized by Mace as having "mild neck pain." The case report adds, however, that the patient complained of "tingling and numbness in the left forearm." The second patient is characterized by Mace as having "wrist pain and soreness all over." The report additionally adds that "on examination, he was reluctant to turn his head and admitted that he had a stiff neck." Dr Mace does not emphasize that the clinical reviews she cites4,5 are retrospective chart reviews. One of these papers even states, "Whether the concept of the painless or occult cervical spine injury is an important clinical entity awaits a carefully monitored prospective study."5

Mace also cites as a case report the same case that is presented in the present paper. This essentially increases the apparent number of cases in a misleading way. In that earlier case report, Mace concludes by writing, "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."6 Does Dr Mace then advocate we take cervical spine x-rays?