

Careful examination showed no burns. He remained without a fever throughout his admission.

He was nursed in bed and received benzylpenicillin 500 000 units four times daily for four days and oxygen via a nasal cannula. Chest radiography (figure) showed bilateral patchy consolidation, more noticeable on the left, with mediastinal and right supraclavicular surgical emphysema and no fractures. He made a rapid, uneventful recovery and was discharged home four days later with only a few persisting pulmonary crepitations. As is common in this region, he failed to attend for review.

Comment

Injuries resulting from electrical contact with lightning have included neurological effects,¹ burns,^{1,2} cardiorespiratory arrest,³ and severe localised tissue damage.⁴ A lightning bolt, however, also causes sudden heating and expansion of the air through which it passes, producing strongly positive then negative pressure waves, which result in the familiar thunder clap. The injuries sustained by this patient were attributable to this blast effect alone and were compatible with the pulmonary lesions reported by Zuckerman from experimental explosions.⁵ The patient had no burns; I suggest that the actual lightning strike was to a nearby object and that he was not actually in contact with the electrical discharge.

No other clear case of pulmonary blast injury resulting from lightning has been described, but in one case reported by Hanson and McIlwraith the heart and ascending colon were found at necropsy to be extensively bruised, consistent with blast injury; the lungs, however, were normal.²

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2 Hanson GC, McIlwraith GR. Lightning injury: two case histories and a review of management. *Br Med J* 1973;iv:271-4.

3 Strasser EJ, Davis RM, Menchey MJ. Lightning injuries. *J Trauma* 1977;17:315-9.

4 Skan DA. Death from lightning stroke, with multiple injuries. *Br Med J* 1949;i:666.

5 Zuckerman S. Experimental study of blast injuries to the lungs. *Lancet* 1940;ii:219-24.

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Oblique rib views after blunt chest trauma: an unnecessary routine?

In recent years increasing attention has been focused on unnecessary radiographic examinations in the accident and emergency department.¹⁻⁴ We think that a further topic for review is the oblique x ray view of the ribs after blunt chest trauma.

Patients, methods, and results

The case notes of 1178 patients aged 6-95 who had had x ray examinations after blunt chest trauma were retrospectively reviewed. The time of presentation after injury varied from less than one hour to over a week. All of these patients had had a frontal chest x ray film and at least one oblique view of the ribs. Two hundred patients were identified who were thought to have had a rib fracture by the casualty officer interpreting the films at the time of presentation. The films of these patients were reviewed, the frontal chest and oblique views being evaluated separately. The relevant side of injury was known when the frontal film was viewed.

Of the 200 patients, only 155 were considered to have a fracture on the

Complications of rib fractures and x ray findings

Complication	Seen in frontal view only	Seen in rib view only	Seen in both views
Haemothorax/effusion	21	0	3
Surgical emphysema	3	4	0
Pneumothorax	1	0	1
Flail segment	1	0	2
Pulmonary contusion	2	0	1
Mediastinal widening	1	—	—

second viewing when the findings of both views were amalgamated. Fifty two patients who had a fracture shown in the oblique view had none visible in the frontal view. Most of these (32) had only a single fractured rib. One patient who had a normal frontal radiograph had five fractures visible on the oblique view. Four cases of surgical emphysema were recorded on the rib view alone but, of these, three had a pleural effusion visible on the frontal chest radiograph.

Forty four of the patients from the series had been admitted to hospital, 17 for reasons relating to their rib injury alone, the remaining 27 for other injuries. The table lists the complications recorded and compares the findings of the two views.

Comment

Of the 1178 patients submitted to radiological investigation 155 were shown to have a rib fracture. Simple analgesia is the treatment of uncomplicated fracture irrespective of the number of ribs affected. Analgesia is not withheld if no rib fractures are identified. Thus the value of the x ray examination is to identify those patients who have sustained a complication of their rib injury.

In this series 44 patients were admitted, 27 of them for a consequence of another injury. In these cases the oblique view did not influence the admission. Thus there are 17 patients who were admitted for reasons relating to their rib injury alone. Of these, 15 had a complication of their injury (such as a pneumothorax) visible on the frontal view which would have indicated the need for admission.

Hence out of the initial 1178 cases the decision was affected in only two by the inclusion of the oblique rib view. One of these patients (aged 81) had five fractures on the oblique view but a normal frontal view. It is a policy of our department that any person with four or more fractures should be admitted to hospital for observation. This patient refused admission but was seen again three days later with no untoward sequelae. The other patient (aged 50) presented two days after rib injury. A small amount of surgical emphysema was seen in the oblique view but not in the frontal view. This patient took his own discharge against medical advice and no follow up was possible. Though the failure to see a fracture is perhaps a little disturbing, the patient was obese and the frontal chest radiograph was underexposed; we suspect that a more satisfactory film would have disclosed the abnormality.

We think that our results justify the conclusion that routine oblique views are unnecessary in the evaluation of rib trauma, as they do not alter management appreciably. The only film required is the frontal chest radiograph, which in cases of trauma to the lower ribs may have to be slightly overpenetrated.

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4 de Lacey G. Clinical and economic aspects of the use of x-rays in the Accident and Emergency Department. *Proc R Soc Med* 1976;79:20-3.

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