

for other aspects of the practitioner's function not directly connected with mental illness. The family doctor's role in the treatment of psychiatric disorders can be defined clearly only in the perspective of his larger relationship to the medical services and society." It follows that if the term community psychiatry is to have any meaning it must be viewed in the light of the role and function of the primary care provider in the broader framework of the structure and value system of each society. Such an issue entails many contingent factors, such as political objectives, staffing, money, professional status, and public expectations. Each system of medical care introduces variations on this basic theme, and a recently published WHO report suggests that the movement in this direction is underway on a wide front.<sup>23</sup> Experiment, evaluation, and comparison are needed if we are to turn Titmuss's fictions of yesterday into the facts of tomorrow.

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## Lesson of the Week

### Hyperextension injuries to the cervical cord in the elderly

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**Bruising or abrasion of the forehead after a fall in elderly patients may point to an important hyperextension injury to the cervical spinal cord**

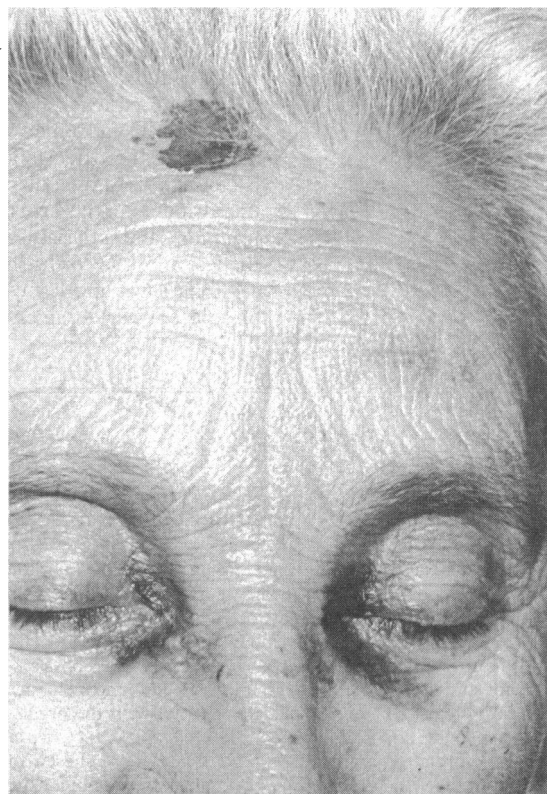
Severe hyperextension injuries to the cervical spine are a well recognised cause of tetraparesis in young adults. In the elderly, however, a fairly trivial injury to the neck can cause an unexpectedly severe neurological deficit. Doctors' lack of appreciation of an interaction between a minor hyperextension injury to the neck and pre-existing, often asymptomatic, cervical spondylosis can lead to delay in making a correct diagnosis. We describe one typical patient (case 1) in detail and report on six other patients who presented over six years to a neurological centre.

#### Case reports

##### CASE 1

An 81 year old woman with severe chest pain for which she took glyceryl trinitrate fell forward, striking her forehead, and was unable to move. She had no history of difficulty in walking or cervical root pain. Examination showed an abrasion on her forehead and periorbital bruising (figure) but no neurological deficit, despite her complaint of weak arms and legs. Twenty four hours later weakness of her arms and legs was noted and the Guillain-Barré syndrome diagnosed. On neurological referral 48 hours after admission she had evidence of a spastic paraparesis, brisk triceps jerks, inverted biceps and supinator jerks, and considerable weakness of all C7, C8, and T1 innervated muscles. Sense of vibration was absent at the ankles but retained at the knees, and spinothalamic sensation was lost up to C6. A catheter was inserted to drain her urine.

x Ray films of the cervical spine showed severe spondylotic changes from C3 to T1, with considerable narrowing of the joint spaces and posterior osteophytes. Electrocardiograms and chest x ray films were normal. She was fitted with a firm cervical collar. Her bladder function soon reverted to normal, and her leg function



Abrasion on forehead and periorbital bruising after a fall in woman with previously undetected cervical spondylosis

improved substantially, but the function of her hands and arms improved only modestly. She was discharged 14 weeks after admission, ambulant with a walking frame but with her hands still weak and clumsy.

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Case No	Age (years)	Sex	Injuries	Initial diagnoses	Delay to neurological assessment (days)	Outcome	Duration of stay in hospital (months)
2	60	F	Facial laceration, fractured jaw	Hysteria	5	Independent with a walking frame	2
3	70	M	Facial	Multiple sclerosis, peripheral neuropathy, hysteria	7	Independent	3
4	72	F	Bruising of forehead	Stroke, transient ischaemic attack	7	Independent with a walking frame	5
5	60	M	Laceration of forehead	Hysteria	6	Independent	3
6	75	M		Myocardial infarction, stroke	11	Independent with a walking frame	1
7	78	F	Fractured pelvis, fractured humerus	Stroke	12	Ambulant	1*

\*Patient died of pulmonary embolus in hospital.

CASES 2-7

The table gives details of six other patients seen over six years.

Discussion

These cases illustrate the difficulties and delays that occur in diagnosing cervical cord injury correctly. Delays were due in part to a failure to take account of the patients' histories as all the patients complained that their arms and legs became weak at the time of, or soon after, a fall. Failure to elicit or to interpret correctly the neurological signs also contributed to the delay in diagnosis. All patients had lower motor neurone signs in their arms, usually with distal weakness and pyramidal signs in their legs, with disturbance of micturition. Useful pointers towards the correct diagnosis were the history of a fall and facial injuries, in particular bruising of the central forehead, laceration, or abrasion in association with tetraparesis. One patient (case 4) had lost consciousness, and the details of her fall were not available. In such cases bruising of the central forehead is an important indicator that the head has been injured and that the neck has probably been hyperextended.

In a previous study of injuries to the central cervical cord several patients had frontal lacerations or injuries, but the authors did not comment on their importance.<sup>1</sup> All of our patients at examination had signs of the central cord syndrome, which is the commonest of the syndromes that affect a portion of the cervical cord and is characterised by a disproportionately greater motor impairment in the arms than the legs, bladder dysfunction, and a variable degree of sensory loss below the lesion of the cord.<sup>2</sup> In extension the spinal cervical canal narrows, partly owing to changes in the relation of adjacent vertebrae and from infolding of the dura

and ligamentum flavum. If the cord is already constricted at one or more levels by spondylotic bars abrupt hyperextension can lead to it being squeezed, with consequent neurological damage.<sup>3</sup> In elderly people with cervical spondylosis however, other sorts of falls, such as simply sitting down too hard, can precipitate severe myelopathy.

Many patients presenting with a central cervical cord syndrome as the result of injury warrant investigation by myelography or nuclear magnetic resonance imaging as a prolapsed soft cervical disc cannot be diagnosed on clinical grounds in the elderly. Indeed, the protrusion of the disc may occur at a higher level than usual in the neck in association with limited mobility at a lower level owing to spondylotic changes or spontaneous fusion. An operation is clearly the treatment of choice for these patients.<sup>4</sup> In our patients, however, because of the delay in referral to the neurology department, their condition had stabilised or begun to improve. Management with a hard cervical collar resulted in all of them having a reasonable, although slow, return of function despite the initial severity of the neurological deficit. We think that the central cervical cord syndrome should be recognised more widely; the recovery of an elderly patient with the syndrome who has had a hyperextension injury is not enhanced if doctors and nurses wrongly conclude that the patient is hysterical.

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MATERIA PARAMEDICA

A steely heart: shell fragment in the myocardium

National Service in the armed forces came to an end in 1960. Eighteen year olds attended a medical board, and anyone with a dubious finding was referred to a local hospital for further assessment. In my capacity as a general physician at Dulwich Hospital, in southeast London, I was looked on by the local board at Lewisham as a medical Pooh-Bah. I was, therefore, not surprised to receive a letter addressed to me by name as the consultant cardiologist since my "specialty" varied with the organ or system under suspicion.

Before me was a healthy young man, whose chest x ray had revealed a small dense central opacity. The opacity was obviously metallic, with a very jagged irregular outline, and about one third of an inch (8 mm) in diameter. A lateral view showed it to lie anteriorly. On fluoroscopy the opacity moved to and fro a short distance with each heart beat. It clearly lay in the anterior wall of the right ventricle. I questioned the young man about the possibility of a penetrating injury, and the following story was told.

In 1941 or thereabouts his mother was out shopping and left him, an infant of about 3 years old, outside the shop strapped in his pushchair. An air raid was officially "on," but all had seemed quiet. On his return home, a small wound was found in the skin over the centre of the sternum. I looked again at his chest and, sure enough, there was a small scar at the expected site. He had escaped death by a millimetre.

Shell splinters from our anti-aircraft fire were commonplace in those days. Usually the size of a finger or phalanx, they were bright and shiny, scintillating from their many irregular facets. Picked up from pavements by passers by the morning after a raid, many found their way to mantel shelves as ornaments. These shell fragments fell at great speed, as judged by the two inch (5 cm) depression they made in the surface of a lawn. Their effect on an unprotected head was lethal. One normally received warning of their impending arrival by the rapid "thub-thub-thub" of the exploding shells a minute or so in advance of their landing. That characteristic sound meant "get into the nearest doorway quickly and wait."

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