PRACTICE OBSERVED

Emergencies in the Home

Head, neck, and back injuries

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With the recent changes in our society in which the home includes not only the ubiquitous family car but also an increasing number of the aged, alcoholics, do-it-yourself conscripts, and battered persons the family doctor can expect many emergency calls to treat the seriously injured. A high proportion of these will have head and spinal injuries. With every minute that passes an unconscious person with an impaired airway suffers increasingly permanent brain damage because of hypoxia and cerebral venous engorgement. Moving a patient with a spinal fracture or dislocation injudiciously may result in permanent paralysis from preventable cord damage. Reducing mortality and disability depends on applying corrective measures immediately. However quickly the emergency services respond, a delay of 9 to 20 minutes is inevitable. A trained bystander can fill this gap in medical care. In America and Scandinavia lessons in first aid and cardiorespiratory resuscitation begin at primary school, and 10% of the population are considered competent to carry these out. In the rest of Europe the proportion is a mere 1%. As family doctors we have a duty to co-operate in any similar campaign of public education for the United Kingdom.

How to respond

THE ALERT

The alert is usually by telephone. By judicious inquiry a tentative diagnosis can be made and simple instructions given; it is a wise precaution to ensure that the ambulance service is also alerted, as much trained help as possible being required on site and in transit.

WITNESSES

Sadly, it is a fact that witnesses too often disappear or become hysterical. It is, however, essential to establish and record a history of the event, especially the identity of the patient, the levels of consciousness, and whether there is vomiting and voluntary or involuntary movements.

ACTION

If the patient is unconscious a clear airway must be ensured at once by putting the patient in a semiprone position, wiping out the mouth, and removing dentures; then by using suction, inserting an artificial airway, and by positive-pressure assisted ventilation if necessary (fig 1). Snoring, cyanosis, and engorged neck veins all indicate unrelieved obstruction. With every second that passes the danger of venous bleeding within the skull

FIG 1—Seated, unconscious woman being given assisted positive-pressure ventilation.

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increases, and cerebral oedema develops rapidly, reducing arterial perfusion. Brain cells die from hypoxia, the midbrain is compressed and displaced downwards, decerebrate rigidity occurs, and death soon follows. In so many cases this vicious cycle can be prevented or broken by intubation, suction, and if necessary assisted ventilation with air or oxygen. All doctors should be capable of performing laryngoscopic intubation and intravenous infusion, skills that may be revised under supervision of a hospital colleague.

An injured person trapped in a seated position may have an airway cleared by tilting the chin upward and inserting a Guedel-type airway. A neck splint will hold the chin in this position and guard against further spinal deformity because of cervical fracture or subluxation. One of the most distressing events a family doctor has to witness after a head injury is a prolonged epileptic attack, knowing that cerebral damage is occurring during the spasm, when apnoea, venous congestion, cyanosis, and hyperthermia await release by the clonic stage or by drugs. In my experience gentle mouth-to-nose artificial respiration, avoiding any distension of the stomach, improves the colour considerably and appears to shorten attacks.

This year millions of television viewers on both sides of the Atlantic watched the sequence of unrelieved brain compression of the bantam-weight boxer, the late Johnny Owens. The preliminary blows to the head causing confusion, a sharp blow to the temple, the fall to the ground with a further blow to the back of the head, and his being left unconscious and on his back with an obstructed airway were all clearly seen. That salutary sequence might well be used in any future teaching campaign so that some good might be served from that tragedy.

Complications

Thirty per cent of patients with head injuries have other injuries too. Neck injury must always be suspected. Head injury alone does not produce signs and symptoms of severe blood loss, which must be sought elsewhere.

Serial observations of levels of consciousness are very important and should be started at once. Standardising the recording of levels of consciousness would be helpful, and the older terms of comatose and semicomatose would be better dropped. At Glasgow the coma scale (table) measures three aspects of behaviour: motor responses, verbal responses, and eye opening. Monitoring should be repeated at intervals of 15 minutes, and any lucid interval is one of the most important signs.

Glasgow coma chart

Motor response:	
	Obeys commands
	Localises to pain
	Flexes to pain
	Extends to pain
	No response to pain
Verbal responses:	
	Orientated
	Confused
	Inappropriate (shouting and swearing)
	Incomprehensible
	No response
Eye opening:	
	Spontaneous
	To speech
	To pain
	None

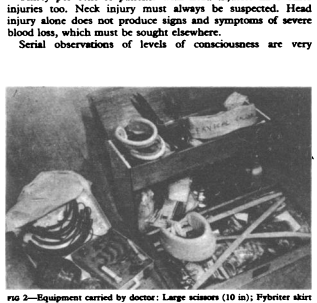

FIG 2—Equipment carried by doctor: Large scissors (10 in); Fybriter skirt pencil; space blanket (aluminium/polyester foil blanket, adult size); Fracstraps, set of five; fire extinguisher; short spinal board; 2 ft × 8 ft (0·6 × 2·4 m) Britax spinal board straps; Modulaide "Doctor" Bag with jet suction unit, inhalation/ventilation resuscitation bag with adult and child's masks and four airways, Laerdal laryngoscope; set of inflatable splints; suction catheters FG10, 12; endotracheal tubes; intravenous cannulae; six Surgipads 8 in × 8 in; four Melolin 8 in × 12 in; six Melolin 4 in × 8 in; 10 packets of five filamented gauze swabs; adhesive tape 1 in × 5 yards; dressing scissors 7 in; giving set; normal saline; Haemaccel; cut-down set; crêpe bandages 3 in × 3 in, 2 in × 4 in; four triangular bandages; Spencer Wells forceps size 7; elbow immobiliser; KY jelly 24 g; five Mediprep swabs; Tsurungs-Thomas portable fraction splint; waterproof kneeling sheet; surgical or disposable gloves; collar; blood-grouping bottles; intravenous analgesic (Fortral/pethidine); disposable syringes 2 × 2 ml, 2 × 10 ml and needles; tourniquet; stethoscope; pen.

Pupils—Their reactions, equalities or inequalities, and size are very important. Dilatation of the pupil is a late and ominous sign.

Limb movements—Voluntary and involuntary movements need recording because their changing pattern might localise an intracranial lesion.

Pulse—Both tachycardia and bradycardia are important.

Transport—An unconscious person or one recovering from unconsciousness should never be taken to hospital without an attendant who is capable of maintaining an open airway. The doctor should be prepared to travel with his patient, the hospital having been alerted meanwhile.

Admission to hospital—Ideally all patients who have had a head injury associated with a change in consciousness should be monitored for 24 hours. Children suspected of having non-accidental injury should always be admitted, but there are other cases in which the parents are naturally reluctant to be parted from their child. In such an event they should be instructed in monitoring and be told to call the doctor should vomiting or unconsciousness occur.

Scalp wounds—It must be remembered that bleeding may be extensive, especially in children. Simple pressure around the wound can control this. Scalp wounds may also be associated with underlying skull fractures, and wounds should not be sutured without very careful examination including x-ray examination. Meningitis may occur if these precautions are not heeded.

Spinal injuries

The conscious patient may be asked about areas of pain or anaesthesia, and may be asked to move his arms and legs under supervision. The spine can be palpated along its length to detect abnormalities. Any person complaining of neck pain after a head injury should have a cervical splint applied. This can be in the form of a newspaper folded to a width of 5 in (13 cm) and secured with a handkerchief or bandage. A modified Harrington collar is used by immediate care schemes. There are now many effective and comparatively cheap collars available commercially and these include the Camp collar and the Hine's Cervical Splint. Too many cervical injuries still go untreated and sometimes undetected. It is most important to handle the patient gently with as many helpers as possible and avoid undue bending or twisting. The procedures are well described in current first-aid manuals. The short spinal board is helpful for some awkward extrications. This, and the "scoop" stretchers, which enable a patient to be lifted in the position found, are now carried on most emergency ambulances. The Jordan Frame-Lift with its system of adjustable and interchangeable slats serves the same purpose and is much favoured in Australia, where air ambulances travel interstate.

For the comfort of the patient, and to avoid skin damage, hard objects such as coins or keys should be removed from pockets pressed on by the patient's weight. Conscious patients are best placed on their backs with padding in the spinal curves and between ankles and knees, the legs being bound loosely together.

Pain from spinal injury and from disc protrusion may be severe and much relief can be given to conscious patients if they inhale Entonox, a mixture of 50% each of oxygen and nitrous oxide.

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Law and the General Practitioner

Writing medicolegal reports

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Legal, or forensic, medicine is conveniently defined as: "the medical specialty which applies the principles and practice of medicine to the elucidation of questions in judicial proceedings." In modern society the two professions of law and medicine are meeting more often. Any practising doctor is increasingly likely to have to prepare a medical report for use in judicial or quasi-judicial proceedings.

Objects of a medicolegal report

The principal object of any medicolegal report is to provide a full and detailed account of all medical problems so that the recipient can form a well-informed and balanced view and can decide on future action.

The doctor's role in all medicolegal problems is that of a completely impartial professional—giving detailed consideration to the case, and formulating a balanced opinion based on his findings irrespective of the interests of the authority requesting the report.

Type of medical reports requested

The most commonly requested medical reports are:

(1) Reports on past medical history and present medical condition in relation to life insurance, matrimonial problems, fitness to drive (both private vehicles and public service or heavy goods vehicles), and adoption proceedings.

(2) Reports of medical examinations in civil cases over personal injury accidents, industrial diseases, testamentary capacity, the effects of illness or of injury on work capacity related to redundancy.

(3) Reports on medical examinations in alleged criminal cases, including personal injury offences (assaults, sexual assaults, incest, drink and drug offences, non-accidental injury to children), and other criminal offences such as shop lifting.

(4) Reports and opinions based on the interpretation of the medical findings of other doctors in both civil and criminal matters.

The first three types of circumstance are "factual" reports in that they are concerned with the examination findings of the doctor who is preparing the report; the fourth type is an "opinion" report and is mainly restricted to experts. The general practitioner is likely to be concerned with the first three types and not with the "opinion" type of report.

Essentials of a medicolegal report

To fulfil its principal objective, any medicolegal report, irrespective of the reason for the request, should contain some reference to the following matters, each written under their specific heading:

Identity of the authority requesting the report—that is, insurance company; solicitors; police; coroner; court; employer; trade union.

Identity of the patient—This should include the name and address of the patient, his age, date of birth, marital state, normal employment, normal hobbies and social activities, and the family and social history.

Consent to medical examination and report—The fact that the patient, or the patient's legal guardian, has consented to both the medical examination and to the reporting of the examination findings should be recorded in the report as well as in the examination notes. Written consent is not always required in the case of an adult patient, but it is prudent to obtain it. Written consent of the parent or guardian is essential in all cases concerning a minor or a person who by virtue of serious mental disease or incapacity is unable to give legally valid consent. Specific consent is not required in certain reports—that is, to the Coroner where the report deals with the medical history of the deceased; when a court orders a medical examination and report; where the terms of employment imply consent to medical examination and report of relevant conditions to the employer; or in cases where there is a statutory duty on the doctor to report certain conditions.

Date and place of medical examination—Every medicolegal report must include the date on which the examination was performed. If the examination was performed in the presence of a third party the identity of this person must be indicated both in the report and in the examination notes. In criminal cases this third party may become a vital link in the "chain of evidence" providing important corroborative evidence of the date, time, and place of the medical examination. It is prudent to include the time that the medical examination began and ended, both in the medicolegal report and in the examination notes. This simple observation of time taken to examine may support the contention that the examination was a complete and thorough one. The time and date of the start of the examination may become important later (often many months later) when the appearance of any injuries observed, or the signs of intoxication by drink or drugs may suddenly be important in relation to the time between an incident and the examination. (The appearance of bruises and abrasions changes with the passage of time; intoxicated patients recover from their intoxication; scars fade or show keloid formation; and fractures heal with callus formation and re-absorption.)

Identity of the examining doctor—The name, qualifications, appointments, and experience of the examining doctor should be included in the report. This information is of great value to the recipient of the report for it assists him in estimating the value of the report and opinions stated when compared with possibly opposing reports from other doctors.

Medical history of the patient—Under this heading must be included all previous illness, surgical operations, serious accidents, hospital and medical treatment, and details of all drugs being taken before the incident and at the time of the incident. These details may not seem relevant or important at the time of the examination but may become vital later. Under the heading of drugs prescribed drugs must be included as well as any self-prescribed or abused drugs. Alcohol must be considered as a drug in this context. The dose consumed and the time of the last dose must be included in the report and the examination notes. In sexual cases the details of menstruation and the type of menstrual protection used must be included, as must the fact of previous sexual experience and the date of the last "consenting" sexual encounter. Again these matters must be included also in the examination notes.

History of the incident—The medicolegal report (and, of course, the examination notes) must include a full and detailed history of the incident. As far as possible the history should be obtained from the patient and should be recorded in the patient's own words. Obviously in the case of a young child this can be difficult if not impossible, and then the history must be obtained from the accompanying adult, whose identity must be recorded. Considerable time is required to take a proper history, but it is well spent for a valid opinion can be formed only when the examination findings are compared with the detailed history. The details in the history must include all allegations of force; any explanation offered for injuries present; details of the immediate effects of the incident together with any delayed effects noted by the patient; the rate and state of recovery; the present complaints; any medical advice or treatment received between the incident and the examination; any bathing or washing of affected parts between the incident and the examination if the latter is taking place within 48 hours of the incident.

General medical examination—A full head-to-toe examination is essential and this must include all systems and all injuries found, both recent and old. The report should include all the findings of this general examination, recording both the normal and the abnormal. Abbreviations such as "NAD" should be avoided.

Specific examination—Specific examination of the areas of main interest should not be attempted until the full general examination has been completed. Before this part is begun careful consideration must be given to any scientific evidence that may be required so that the relevant samples may be taken before the specific examination is undertaken. In this way accidental contamination of suspect areas by the doctor can be minimised. This routine is of vital importance in cases of alleged sexual assault, intoxication by alcohol or drugs, and in certain types of injury and wounding where the injury may contain, or have adherent to it, physical traces of contact with the causal instrument. The report should include a note that all scientific samples were taken before any touching or cleansing of the area of main interest was performed, and all specimens taken must be recorded in the report. In criminal cases, the person to whom all samples were given must be clearly recorded in the report. This forges yet another link in the chain of evidence that is a vital part of proof in all criminal cases. The report must record all normal and abnormal findings of the specific examination. All injuries must be carefully described as to type, position, skin dimension, and, if possible, depth. Simple line drawings are of great value.

Special investigations—All special investigations must be included in the report. These may include swabs and specimens for laboratory examination, x-ray examinations, photographs of injuries, etc. If the results are not available when the report is prepared this must be recorded and the advice included that any opinions expressed in the report may have to be modified because of subsequent laboratory or radiographic evidence.

Opinion—Every report must include an opinion based on all the information available. The opinion should express the doctor's views on: (*a*) The consistency of his examination findings with the history of the incident, viewed against the background of the patient's complaints and past medical history; (*b*) the possible causes of the conditions found on examination; (*c*) the prognosis.

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Forms of medicolegal report

Many reports, such as those to insurance companies, local authority licensing departments, the Ministry of Transport, employers, local authority health and welfare services, employers, and civil courts may be prepared on the examining doctor's own headed stationery or on forms provided by the requesting authority.

More formal reports such as are required under the Criminal Justice Act 1967, or the Coroner's Rules 1980, must be prepared in the form of a statement under a statutory declaration in these terms:

This statement, consisting of pages each signed by me, is true to the best of my knowledge and belief, and I make it knowing that if it is tendered in evidence I shall be liable to prosecution if I have wilfully stated in it anything which I know to be false or do not believe to be true."
Dated this day of 19 Signed

Such a formal statement enables the document to be used in evidence if all parties in a legal confrontation agree it, and the doctor's time is then not wasted in attending court. The fuller and more detailed the statement, the greater the chance of it becoming an agreed document at trial.

Conclusion

Throughout this article, repeated reference has been made to the contemporaneous notes of the examination. The medicolegal report does *not* take the place of the notes: it merely reduces them to a more readable, understandable, and legible form. The contemporaneous examination notes are vital corroboration of the report in all its factual aspects.

This short article is intended to indicate that the writing of a medicolegal report should not be entered into "unadvisedly, lightly, or wantonly," but should always be entered into "reverently, discreetly, advisedly, soberly, and in the fear of God." If it fulfils this limited role it will have accomplished all it set out to do.