15 MeV unit, and some may therefore have relapsed because of unsatisfactory radiation distribution, resulting in inadequate doses to probable areas of disease in the mediastinum or axilla. With the improved techniques now available the possibility of significant dose inhomogeneity should be reduced substantially, although in patients with large intrathoracic masses the difficulty of adequately encompassing all disease while keeping within the limits of normal tissue tolerance will continue to present problems for the radiotherapist. The main factor is the pattern of regression of mediastinal and hilar masses after irradiation. While truly mediastinal masses regress towards the mid-line, enabling more and more lung to be protected during irradiation, hilar nodes often shrink in situ, so that the remaining foci of disease may still be so far from the mediastinum that the volume of overlying lung limits the permissible dosage.

Despite the possible risk of second malignancy we have now adopted a different management policy in patients with these features. The initial treatment now consists of six courses of MVPP¹⁹ before staging laparotomy. Depending on the presence and extent of any residual disease, this may then be followed by further chemotherapy or by irradiation of the sites of initial disease. So far this alternative regimen has caused no increased morbidity and the results of this delayed laparotomy study are being assessed and will be published shortly. In the clinical stage IIA group 60% of the relapses occurred outside the original treatment fields, below the diaphragm. Despite the inclusion of the unfavourable cases, the risks of laparotomy are clearly outweighed by the benefits in disease-free survival, as shown by the relative five-year figures of 70% compared with 42% (fig 3). Subsequent chemotherapy and its attendant risks may thus be avoided in most of these patients.

The optimum treatment of stage IIIA disease has yet to be established. Trials of combined chemotherapy and radiation as initial treatment have shown improved disease-free intervals but no effect on overall survival figures.²⁰ Success in obtaining further complete remissions in relapsed radiotherapy-treated patients is so good²¹ that it has yet to be shown that the early addition of chemotherapy prolongs survival. Until the results of our current prospective randomised trial for stage IIIA disease are available, we are not prompted to change our treatment of these patients at present.

Conclusions—Firstly, mantle or inverted-Y radiotherapy to a dose of 3500-4000 rads in four to four and a half weeks is adequate treatment in pathologically staged IA disease, and initial surgical staging should be performed in this group. Secondly, the presence of large mediastinal and hilar disease is

associated with a high rate of local or locomarginal relapse. The addition of chemotherapy seems to be justified in this subgroup, but radiotherapy alone offers a high probability of cure for the rest, providing they are pathologically staged. Finally, we make no definite recommendations about the optimum treatment for patients with stage IIIA and we await the results of further studies. In view of the excellent response rates, however, it would seem reasonable to withhold chemotherapy in those treated by total nodal irradiation until relapse occurs and thus avoid unnecessary treatment in some 70% of cases.

We acknowledge the contribution of the staff of the departments of radiotherapy, medical oncology, and histopathology, St Bartholomew's Hospital, and the support and co-operation of the late Professor Gordon Hamilton Fairley, under whom many of these patients were admitted.

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SHORT REPORTS

Seat belt injury to ileostomy

The widespread use of seat belts decreases the morbidity and mortality in road traffic accidents.¹ Nevertheless, evidence is accumulating that some injuries may be directly attributable to the seat belt.² Direct trauma to an ileostomy by a seat belt is an unusual injury and does not seem to have been reported.

Case report

An 18-year-old man who had undergone a panproctocolectomy with terminal ileostomy for ulcerative colitis was admitted to this hospital as an emergency having been the driver of a car which had rolled down an embankment to come to rest on its roof. The patient was trapped inverted in his seat belt. On inspection after the accident there had been no apparent failure of the seat belt.

He had no evidence of major injury but complained of pain in the region of the ileostomy, and profuse bleeding was noted from the mucosa of ileum

and from the mucocutaneous junction. The bleeding was not controlled by direct pressure and under anaesthesia a 4-cm circumferential laceration at the mucocutaneous junction was repaired, as were several small mucosal lacerations; his subsequent course was uneventful.

Comment

Discussion persists on compulsory wearing of seat belts, yet there is good evidence that seat belts are beneficial in an accident. Nevertheless, in the past two decades increasing information has become available to indicate that a seat belt injury syndrome exists with intra-abdominal and spinal trauma.^{3,4} The injury pattern varies with the design of the seat belt, the most effective in preventing injury being the combined shoulder and lap strap,¹ as in this case—where, when properly adjusted, the belt was found to overlie the ileostomy appliance. The mechanism of injury was thought to be direct trauma to the ileostomy from the lap strap while the patient was being restrained as the vehicle somersaulted.

Though patients with ileostomies and their doctors should be

aware of the possibility of this injury, we believe that patients should be strongly advised to wear seat belts, properly fitted in compliance with the manufacturer's instructions. This case report in no way detracts from the value of the seat belt but tends to support the view that major injury will be minimised in this type of dangerous accident.

We present this case to indicate another variant of the seat belt injury syndrome and in accordance with the suggestion that such injuries should be recorded to assess the magnitude of the problem.

We thank Mr J H Balmer for permission to report this case and Miss Hilary Cromie for typing the manuscript.

ADDENDUM—Since this report was written this patient was seen again at another hospital with total avulsion of his ileostomy as the result of direct trauma during a brawl. The ileostomy was satisfactorily revised, and his postoperative course was uncomplicated. There was no history or evidence to suggest that either of these injuries were self-inflicted.

¹ *British Medical Journal*, 1973, **1**, 195.

² MacLeod, J H, and Nickolson, D M, *Canadian Journal of Surgery*, 1969, **12**, 202.

³ Fish, J, and Wright, R H, *Journal of Trauma*, 1965, **5**, 746.

⁴ Williams, J S, and Kirkpatrick, J R, *Journal of Trauma*, 1971, **11**, 207.

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Burn hazard with cement

Warnings about the danger of exposure of the skin to prolonged contact with builder's cement are not normally given to workers in the construction industry, and are not displayed on the containers used by "do-it-yourself" enthusiasts. We have seen several cases of chemical burns caused by cement, and think that more attention should be brought to the risks in its use and to the need for proper diagnosis and treatment.

Most of the patients we see were not aware that prolonged skin contact with cement can produce burns. The usual story is of a building site worker who has allowed cement to spill over the top of or to leak through rents in his boots. Because there is no thermal burn the patient does not feel immediate pain and allows contact to persist. Burns of the hands are more common, but are normally mild and are often accepted as "allergy" to the cement and treated by doctors as "contact dermatitis," often with steroids. Here we describe an unusual presentation.

Case report

A 29-year-old man was seen in our unit two days after spending a period of about one hour on his knees in a shallow layer of wet Readymix concrete while laying a floor in his house. The burns were full thickness in patches around both knees and on both shins, with the areas of pressure spared (see figure). He noticed no pain at the time but was aware of slowly increasing burning and reddening of the skin over the 48 hours before seeking advice. After skin grafting the wounds had healed fully in four weeks. He was completely unaware that cement was corrosive.

Comment

An analysis¹ of typical Portland cement gives the following results: CaO 60-67%; SiO₂ 17-25%; Al₂O₃ 3-8%; Fe₂O₃ 0.5-6%; MgO 0.4-4%; alkalis 0.4-1.3%; and SO₃ 1-3%. Thus the corrosive agent, calcium oxide (quicklime), forms 65% of the total weight² of this amount; only a small proportion (1.5%) is present as free lime, and the rest is present in the form of compounds, mainly as tricalcium silicate. Hydration of cement is exothermic, but the rise of temperature is slow (about 10 C in five hours) and this is not responsible for any of the burns we have seen. When the concrete is hard, a typical sample analysed shows a content of 37% by weight of free calcium oxide.³

It would seem justifiable, therefore, to warn user and employer of the risks of exposure to cement. Adequate protection for the hands and feet, and the avoidance of prolonged skin contact, as well as clearly marked warnings on all containers in which cement is supplied, should be the minimum requirement. Much cement is used where the user does not see the container, and the general public needs to be made aware of the dangers.

Awareness of this hazard on the part of medical personnel would ensure correct diagnosis, rapid treatment, and proper supervision.

¹ Neville, A M, *Properties of Concrete*. London, Pitman, 1975.

² Rugby Portland Cement Co Ltd, personal communication.

³ Messrs Sanberg (Testing Engineers), personal communication.

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HLA phenotypes in long-term survivors treated with BCG immunotherapy for childhood ALL

In recent years evidence has been produced to show the association of numerous diseases with individual HLA antigens.¹ Theoretically, acute lymphoblastic leukaemia (ALL) was initially supposed to be likely to show such an association, since in mice the susceptibility to virus-induced leukaemia is genetically linked with the major histocompatibility complex (MHC).² Nevertheless, Kourilsky *et al* were unsuccessful in their search for an association between ALL and any of 10 HLA antigens tested.³ Since this pioneer work many reports have shown conflicting results. If susceptibility to ALL is not clearly associated with HLA antigens, another method of study would be to look for differences in HLA phenotypes between long-term and short-term survivors. We report here the HLA phenotypes of children with ALL who are surviving without relapse for over six years and being treated with immunotherapy.

Patients, methods, and results

A total of 13 patients were studied, all Caucasians under 20 at diagnosis. Remission induction and maintenance chemotherapy were given from six to 15 months* and then stopped. At this time immunotherapy was started with BCG (Institut Pasteur) applied weekly on scarifications, together with injections of allogeneic irradiated lymphoblasts. This immunotherapy lasted from four to 10 years. No relapse has been observed after three years of *Except for patients No 6 and 8, who received chemotherapy for 30 months.