The patient referred to seems to have been unusual. It is thought that activation of fibrinolysis during pregnancy is uncommon. Indeed this is the very reason why the classic disseminated intravascular coagulation syndromes were first recognised in human pregnancy. Could it be that this patient lacked one of the normal fibrinolytic inhibitors that are known to act either locally⁵ or in the general circulation? If this is the case then the extrapolation is unjustifiable.

I feel that we need clarification of this case or more work by an expert unit before this suggestion is put into widespread practice.

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- ¹ Lauritsen, O S, *Scandinavian Journal of Clinical and Laboratory Investigation*, 1969, **23**, 191.
- ² Wardle, E N, *International Research Communications System*, 1973, **12**, 8-8-8.
- ³ McKay, D G, *Disseminated Intravascular Coagulation*. New York, Harper and Row, 1965.
- ⁴ Wardle, E N, and Wright, N, *American Journal of Obstetrics and Gynecology*, 1973, **115**, 17.
- ⁵ Stark, J M, *Lancet*, 1978, **1**, 417.

* * We sent a copy of this letter to Dr Åstedt and Professor Nilsson, whose reply is printed below.—Ed, *BMJ*.

SIR,—Judging from our experience the fears entertained by Dr Wardle about the risk of inhibition of fibrinolysis in pregnancy go too far.

We are well aware of the fact that fibrinolysis decreases during pregnancy¹ but rapidly returns at delivery after separation of the placenta, and we have also shown the significance of the placenta in the depression of fibrinolytic activity.² Our case of abruptio placentae associated with activation of the fibrinolytic system (25 March, p 756) is not an example of an uncommon complication. The patient did not lack any of the known inhibitors. In a report by Edgington,³ who used the cleavage-associated neoantigen of fibrinogen for differentiating between degradation products derived from fibrinogen and fibrin, he found in all his cases of abruptio placentae that the degradation products were derived from fibrinogen only, indicating activation, above all, of the fibrinolytic system. This is in agreement with our findings in a series of 14 consecutive cases examined with coagulation factors and fibrinolytic components, in which we found fibrin/fibrinogen degradation products (FDP) decreased levels of fibrinogen and plasminogen, while the platelets, P and P complex (factors II, VII, and X), and ATIII were normal. In some patients followed up for a long time during treatment FDP disappeared and the levels of fibrinogen and plasminogen rose. The trigger mechanism presumably consists in liberation of plasminogen activators from the uterus, which is known to be rich in such enzymes, combined with reduced influence of the placenta when partly separated.

For the apparently paradoxical non-thrombogenic effect there are probably several explanations. In a series of patients receiving tranexamic acid for two weeks in a dose of 4 g daily we examined histochemically the fibrinolytic activity in vein biopsy specimens before and on the last day of treatment. Tranexamic acid did not suppress the content of fibrinolytic activators in the vessel wall.

The perinatal mortality in abruptio placentae is about 35% and many children (fetuses) are dead on admission. Using tranexamic acid

routinely in cases of abruptio placentae perinatal mortality in recent years has been 8% in our department. We have not had any complications of haemorrhagic diathesis nor have there been any thrombotic complications.

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- ¹ Åstedt, B, *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1972, **79**, 205.
- ² Åstedt, B, et al, *Acta Obstetrica et Gynecologica Scandinavica*, 1970, **49**, 171.
- ³ Edgington, T S, *Thrombosis et Diathesis Haemorrhagica*, 1975, **34**, 671.

Hairy-cell leukaemia

SIR,—It was a pleasure to see the current interest in hairy-cell leukaemia (HCL) reflected in your recent publication of a useful leading article (8 April, p 872) on this fascinating disease. However, our pleasure was tempered by the misinterpretation of our own work on the subject¹ and by the rather scant discussion of the considerable controversy surrounding the nature of the hairy cell (HC).

You state that we considered the HC to be "a unique cell type, possibly representing a leukaemic proliferation of monocytes." Although many authors have agreed that HCs are related to cells of the monocyte-histiocyte series,² we in fact stated that "these arguments have never been especially cogent" and that our description of a receptor for IgM on HCs, but not on monocytes, "further distinguishes hairy cells from monocytes." HCs possess a number of characteristic, if not unique, properties,³ and we believed that their possession of an IgM receptor further set them apart from both B cells and monocytes. However, this view is no longer tenable since the cells of chronic lymphocytic leukaemia (CLL), but not of a variety of other B-cell or monocytic proliferative disorders, have also been shown to bear a receptor for IgM.^{4,5}

Synthesis of surface membrane immunoglobulin (SmIg) is an essential feature of B cells. However, in the demonstration of SmIg stringent technical precautions are necessary to avoid the problem of extrinsic IgG binding by Fc receptors. When these precautions are observed only a very small population of normal B lymphocytes express IgG SmIg.⁶ In much of the early literature on HCL no account was taken of these technical considerations, and the many reports showing apparent SmIg of both light-chain types and mixed heavy-chain isotypes, including IgG, led to scepticism^{1,2} about whether HCs express genuine intrinsic SmIg, more especially since the cells express a strong Fc receptor.^{1,2} Recently, however, we and others,^{7,8} by using sensitive methods and observing stringent technical precautions, have shown that HCs synthesise monoclonal SmIg which may be IgG alone or of multiple heavy-chain isotypes, including D, M, G, and A. These results explain the previous controversy concerning the true nature of HC SmIg and also seem to place HCs late in any scheme of B-cell ontogeny.⁶

In conclusion, the present state of knowledge suggests that HCL represents a clonal proliferation of an unusual form of B lymphocyte. If there is a normal counterpart to the HC it has yet to be identified unequivocally, but it is presumably an IgM-receptor-bearing cell appearing late in B-cell development, possibly at the stage of activated memory cells

since these latter cells have also been shown to synthesise IgG SmIg. The different but characteristic clinical pictures associated with other B-cell neoplasms such as CLL and multiple myeloma, which may represent clonal proliferations of cells blocked at other stages of B-cell development, suggest that these observations on the nature of the HC may be relevant to the distinctive clinical picture of HCL.

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- ¹ Burns, G F, et al, *British Journal of Haematology*, 1977, **36**, 71.
- ² Jaffe, E S, et al, *American Journal of Medicine*, 1974, **57**, 108.
- ³ Higgy, K E, Burns, G F, and Hayhoe, F G J, *British Journal of Haematology*, 1978, **38**, 99.
- ⁴ Cawley, J C, and Burns, G F, *Quarterly Journal of Medicine*, 1977, **46**, 184.
- ⁵ Pichler, W J, and Knapp, W, *Journal of Immunology*, 1977, **118**, 1010.
- ⁶ Gathings, W E, Lawton, A R, and Cooper, M D, *European Journal of Immunology*, 1977, **7**, 804.
- ⁷ Burns, G F, et al. Submitted for publication.
- ⁸ Rieber, E P, et al, in *Immunological Diagnosis of Leukemias and Lymphomas*, ed S Thierfelder, H Rodt, and E Thiel. Berlin, Springer, 1977.

* * Mr Burns and his colleagues are correct in pointing out that what they really said in their article was that leukaemic reticuloendotheliosis may be a leukaemic proliferation of a recently recognised population of circulating mononuclear cells which differ from cells of the monocyte/histiocyte series. Their letter is a valuable elaboration of the comments on the nature of the hairy cell, which was, of necessity, dealt with briefly in the leading article.—Ed, *BMJ*.

Duodenal erosions on cimetidine therapy

SIR,—A patient with multiple gastric and duodenal erosions developing while on cimetidine was reported by Dr J Webster and others (7 January, p 20). We would like to report a further case.

A 57-year-old man was admitted with haematemesis and melaena. He smoked 30 cigarettes a day and drank one bottle of sherry and a quarter of a bottle of whisky a day. He had taken Alka-Seltzer tablets (aspirin, anhydrous citric acid, and sodium bicarbonate) in the 24 hours prior to admission. There was no relevant past medical history. On examination he had five spider naevi, hepatomegaly, and leuconychia. Endoscopy revealed four gastric erosions on the greater curve of the stomach with evidence of recent bleeding. The haemoglobin concentration was 12.6 g/dl and the bleeding settled with conservative management, including cimetidine given initially intravenously and then orally. Liver biopsy showed micronodular cirrhosis with fatty change in keeping with his disturbed liver function tests. He received cimetidine (200 mg thrice daily and 400 mg at night) for a total of 60 days.

Five months later the patient complained of abdominal pain suggestive of a duodenal ulcer. Endoscopy revealed a duodenal ulcer 5 mm in diameter. Treatment was commenced with full doses of oral cimetidine, with symptomatic relief. Twenty-one days later he was readmitted with haematemesis and melaena. The haemoglobin concentration was 7.6 g/dl and liver function tests were normal. Endoscopy revealed a normal stomach and oesophagus with multiple duodenal erosions in the first and second parts of the duodenum, many of which appeared to have bled

recently. The original ulcer had healed. He was transfused with a total of six units of blood and made an uneventful recovery. The patient's claim, the witness of his relatives, and a return tablet count support compliance with therapy. His claim to abstinence from alcohol is supported by his relatives and the fact that his liver function tests had returned to normal. We were satisfied that no further gastric irritants had been ingested.

This case history emphasises the point that duodenal erosions leading to severe bleeding can develop even during treatment with cimetidine. Some authorities have recommended cimetidine in the treatment of bleeding from gastric erosions arising alone or in association with liver disease.¹ It has not, however, been shown to heal erosions and their pathogenesis is still not understood.^{2,3,4} The dangers of gastrointestinal bleeding are considerable and complacency must be avoided. Cimetidine is not a panacea for gastrointestinal bleeding and its advent should not decrease our vigilance in dealing with such patients, especially when they have associated liver disease.

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¹ MacDougall, B R D, *et al*, in *Cimetidine*, ed W L Burland and M A Simkins, p 329. International Congress Series No 46. Amsterdam, Excerpta Medica, 1977.

² Silen, W, *et al*, *Advances in Internal Medicine*, **19**, 195.

³ Mann, N G, *American Journal of Digestive Diseases*, **1976**, **21**, 89.

⁴ Morley, F G, *et al*, *American Journal of Digestive Diseases*, **1976**, **21**, 146.

Antibacterial activity of cefuroxime

SIR,—With the recent introduction of the new cephalosporin cefuroxime, which is reported to exhibit marked stability to most of the bacterial β -lactamases,¹ we would like to recount the outcome of a recent survey of bacteriological sensitivities which we have carried out in our 450-bedded district general hospital.

During three months we isolated 2537 bacteria from clinical specimens and 2511 of these were tested against cefuroxime using 30- μ g discs. Isolation and identification were carried out by standard laboratory methods supplemented in some instances by the API 20E and 20A systems. Sensitivity tests were performed by the usual method.

Cefuroxime was found to be active against the vast majority of Gram-positive and Gram-negative aerobic and anaerobic bacteria from whatever source they had been isolated—for example, sputum, pus, or urine. In many instances over 90% of each genus were recorded as sensitive—for example, all strains of *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Str mitis* (viridans groups), β -haemolytic streptococci (groups A, B, C, G), *Haemophilus influenzae*, *Neisseria gonorrhoeae*, and 97.2% of *Escherichia coli*, 96.7% of *Staph epidermidis*, 94.3% of *Proteus mirabilis*, and 93.8% of *Klebsiella* spp. Grouping all the enterobacteriaceae together, 93.5% were sensitive to cefuroxime, but none of the pseudomonade were sensitive. Most anaerobes were sensitive (91.1%), although if just *Bacillus fragilis* is considered only 80.9% were sensitive. Comparison of our data with those from a larger survey in the USA² shows close similarities.

Overall, 91.7% of the isolates in our study were sensitive to cefuroxime and this wide

antibacterial cover should make it a useful antibiotic for the treatment of infections requiring prompt parenteral therapy before the causative pathogen has been identified.

It appears that cefuroxime can be added to the treatment of various infections—for example, vaginal, ear, nose, and throat, eye, chest, etc.

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¹ O'Callaghan, C H, *et al*, *Antimicrobial Agents and Chemotherapy*, **1976**, **9**, 511.

² Jones, R N, *et al*, *Antimicrobial Agents and Chemotherapy*, **1977**, **12**, 47.

Contracting in or contracting out?

SIR,—I have held a kidney donor card almost since they first became available and indeed my card is almost indecipherable. Surely a sensible solution to the problems and doubts raised in your leading article (15 April, p 944) is tattooing.

In any fatal incident, notoriously those occasioned by motor accidents, singed or blood-soaked clothing becomes a barrier to the card and its information. A rapid inspection for a tattoo placed, for example, under the foot of the victim should become standard practice. A central computer could record the result of the tissue and the blood grouping determined at the time of the tattoo. I leave it to your more expert readers to judge whether more donors would be lost at the thought of a painful (?) tattoo than are lost through the current system.

D C BISHOP

Turnford,
Broxbourne,
Herts

The postcoital test: what is normal?

SIR,—Mr G T Kovacs and others (1 April, p 818) are to be congratulated on their research into what is normal in postcoital tests. However, they have not stated what the period of continence was for each couple before they performed on the night before the test. Men who have intercourse every night may produce few or no sperm, or even blood, when asked to produce a specimen. Therefore a period of continence should precede the test, and it should be of the same length as for a full sperm analysis. This period of continence may lead Dr J Slome (15 April, p 992) to change his mind about the finding of sperm in the test.

HAYDN DIDIER

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Who discovered the circulation of the blood?

SIR,—I strongly support the claim made by Dr S Al-Dabbagh (15 April, p 992) that Ibn al-Nafis, a 13th-century court physician to Sultan Baybars of Egypt, discovered the pulmonary circulation three centuries before the Portuguese Servetus¹ and the English Harvey. Not unlike Harvey, Ibn al-Nafis met with great opposition for criticising Galen and departing from traditional medicine—so much so that some historians declined to include him in their biographies. It would not therefore be amiss to rechristen the discovery

as "Nafiso-Harveian," for academic precision.

Luckily, I have access to five manuscripts by Ibn al-Nafis in the Bodleian Library, one of which is a holograph written by Ibn al-Nafis himself shortly before his death in 1288. I am quite willing to provide parallel texts from Ibn al-Nafis and Harvey to demonstrate the striking resemblance between the results arrived at by the two court physicians. Perhaps this will be the best present we can offer Harvey on his 400th birthday, as he was a great seeker of the truth.

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¹ Hitti, P K, *History of the Arabs*, p 685. London, Macmillan, 1964.

Hepatitis B in the school environment

SIR,—It is well established that viruses are readily transmitted in a school environment. A previous study¹ in two Glasgow schools showed that a significant number of children of African, Asian, or Chinese parents carry hepatitis B surface antigen (HBsAg) whereas native Scottish children carrying HBsAg are extremely rare. As carriers of HBsAg are potential sources of infection with hepatitis B virus we investigated whether the presence of carriers in these schools led to significant transmission of infection to their classmates.

Presence of antibody to HBsAg (anti-HBs) was used as an indicator of prior exposure to HBsAg. Sera from groups of children of African, Asian, Chinese, and Scottish parentage were examined for anti-HBs (Ausab, Abbott Laboratories). Anti-HBs was detected in some of the non-Scottish children but none of the native Scottish children (see table below).

Results of tests of schoolchildren's serum for HBsAg and anti-HBs

Group	No examined	No positive for antigen	No positive for antibody
African	88	3	4
Asian	142	2	3
Chinese	95	4	13
Scottish	78	0	0

It is unlikely that this higher prevalence of anti-HBs in African, Asian, and particularly Chinese children indicates that HBsAg is circulating in these schools preferentially among these children. What is more probable is that this higher prevalence merely reflects a much higher level of HBsAg carriage among their parentage than among the native Scottish population. In the previous study¹ sera were obtained from the parents of five carrier children—all parents' sera were positive for either HBsAg or anti-HBs.

The finding of no antibody among the native Scottish children was particularly interesting. To substantiate this finding we have obtained blood specimens from a further 146 native Scottish children through the co-operation of parents, school staff, and health visitors. Drops of blood were taken by finger puncture on to absorbent card and the extracts tested for anti-HBs. Tests on known positives showed this method to be less sensitive than testing whole serum but still capable of detecting all but very low titres of antibody. All 146 specimens were negative for anti-HBs.

Blood has long been known to transmit hepatitis B infection and recently saliva has been