problem, although unsensitised latex is not provided in the kit. Positive latex results should be confirmed in the dye test and current CMV infection excluded in those patients whose serum samples give false positive results in the latex agglutination test. This is important as clinical manifestations of both CMV and toxoplasmosis have many similar features.

Further work to identify the antigens recognised by sera giving false positive reactions is in hand, using the Western blot technique.

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Limited value of AgNOR enumeration in assessment of thyroid neoplasms

Argyrophilic nucleolar organising region-associated proteins (AgNORs) have recently been shown to be of interest in a variety of different organs and disease states, including lymphomas,¹ melanocytic lesions of the skin,² and pleural mesothelioma.³ In these and other cases the enumeration of nucleolar structures has been shown to be of diagnostic value in differentiating benign from malignant disease, or in distinguishing between low and high grade malignancy. Accordingly, a study of AgNORs in thyroid tissue

was undertaken to see if the technique could distinguish between benign and malignant lesions, particularly follicular neoplasms.

Thirty three specimens were examined and these included anaplastic carcinoma (n = 4), follicular carcinoma (n = 4), papillary carcinoma (n = 6), follicular adenoma (n = 6), and nodular colloid goitre (n = 13). The usual one step silver colloid reaction¹ was run at room temperature for 35 minutes. Intracellular dots of silver deposit were counted in 100 cells. Counting was difficult in papillary carcinomas because there were clear nuclei with often only one large intranuclear deposit, presumably corresponding to the nucleolus. There was, however, consistency in all categories within cases.

The results are expressed in the figure.

Figure Scattergram showing mean number of AgNOR counts for each case in anaplastic, follicular, and papillary carcinoma and for adenoma and colloid goitre.

There was separation of AgNOR counts between anaplastic and both papillary and follicular carcinomas. The χ^2 test was used to assess significance between the pooled means of anaplastic carcinoma and both follicular and papillary carcinomas ($p < 0.05$). A similar difference was found between anaplastic carcinoma and adenoma ($p < 0.05$) and a more significant difference ($p < 0.02$) between follicular and papillary carcinoma and also papillary carcinoma and colloid goitre. There was also a considerable overlap between all carcinomas and colloid goitre. No other pairings showed a significant difference, particularly follicular adenoma and carcinoma. These findings are not as clear cut as in other studies² where a clear

distinction was obtained between high and low grade lymphomas, benign and malignant melanocytic lesions, and reactive mesothelium and mesotheliomas.

NORs are loops of ribosomal RNA and are therefore important in protein synthesis.⁴ It may be that follicular cells are in variable stages of proliferation or protein synthetic activity in both benign and malignant conditions. Certainly in the study of other endocrine tissues such as breast and prostate by means of the AgNOR method, discrimination between benign and malignant tissue has been relatively disappointing.⁵ This may be, in part, the result of rRNA gene amplification in stimulated non-malignant endocrine cells, leading to increased gene copies and hence higher NOR numbers than in "resting" cells.⁵ AgNORs have therefore shown little value in differentiating between benign and malignant follicular neoplasms in view of the "overlap" in numbers between these groups.

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Coulter Plus IV leucocyte volume analysis instrument: sensitivity of blast identification in peripheral blood

Previous reports evaluating the clinical usefulness of the three population differential have examined various diseases. We studied the sensitivity of the Coulter automated differential in identifying blast cells in peripheral blood samples.

Letters to the Editor

Material and methods

The Coulter Electronics S Plus IV D automated white cell differential is based on the size of cell residues after partial lysis of white cell cytoplasm.¹ The instrument classifies white cells into three populations—lymphocytes, mononuclears, and granulocytes. A histogram of leucocyte volume distribution is produced which incorporates a series of visual alarms. These alarms correspond to the separation valleys between the three cell populations. They are activated when there is an overlap between populations, indicating unclassified cells.

Eighty seven venous edetic acid blood samples containing blasts were processed between 30 minutes and four hours after collection. The samples were derived from 51 treated and untreated patients with a variety of malignant blood disorders (table).

Sensitivity of blast detection was assessed by comparing the automated differential with 100 cell microscopic differential counts in blood films stained by Wright's stain.

the patients had non-flagged blasts while receiving treatment. The sensitivity of regional alarms in identifying blasts was 87%. Blasts could be identified in all samples processed, either by the instrument's alarm system or by scrutiny of the blood count results and attention to proffered clinical details, including chemotherapy, resulting in microscopic review.

Discussion

The Coulter S Plus IV D automated differential does not specifically recognise blast cells and blasts may not be identified based on regional alarm criteria alone.³ The automated differential does not correlate with the microscopical differential when blasts are recognised. Our study indicates that the Coulter leucocyte volume analysis instrument has acceptable limits of operation for the detection of blasts. A microscopic examination of the blood film should be undertaken, however, when there are abnormal findings in the three part differential, in patients with blood disease receiving chemotherapy or when clinical diagnoses indicate a blood film examination is required.⁴ High detection rates for early and rapid diagnosis of malignant blood disorders must call into question the utility of further refined instruments with their attendant high capital cost.

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A tickle at the back of the throat

We report a case of a 15 year old boy who presented with a short history of nasal obstruction. He complained of frequent frontal headaches and had had several episodes of a sore throat in the past year. On

clinical examination both tonsils appeared pitted and unhealthy with the left tonsil being larger than the right. A tonsillectomy was performed without complication and both tonsils were submitted for histological examination.

Both tonsils showed reactive hyperplasia with large active germinal centres. Intraepithelial lymphocytes and neutrophils were present within the crypts. The features were therefore those of active chronic inflammation. In the left tonsil a hair and surrounding hair follicle was also present (figure).

Figure A hair follicle is present within the lymphoid tissue, the hair is clearly seen in the centre. (Haematoxylin and eosin.)

We can find no reference to hair follicles in the tonsil in standard texts.^{1,2} Apart from being a novel discovery it has led us to conjecture about the correlation between the pathology and clinical data. There are no data to support the fact that the patient was a "headbanger" and that the repeated trauma had caused hairs in the frontal sinuses to give rise to headache or "cerebral jeep drivers disease". Obviously the hair could have caused a tickle in the throat, resulting in a focus of inflammation. As soon as pathology laboratories are privatised we think that all tonsils should be submitted for histological examination—the entire structure blocked, cut, and serially sectioned to look for hairs. If no hair is found in the tonsil then we advise a

Table Haematological disorders included in study

Type of disease	No of patients
Acute myeloblastic leukaemia	26
Acute lymphoblastic leukaemia	9
Chronic myeloid leukaemia	
in transformation	2
Chronic myelomonocytic leukaemia	2
Other myelodysplastic disorders	8
Myelofibrosis	4

Results

Alarms indicating the presence of abnormal leucocytes occurred in 76 of the 87 samples (87%). The total white cell counts of patients showing flagged blasts ranged from $1.0\text{--}95.7 \times 10^9/\text{l}$, and those of unflagged blasts from $1.0\text{--}13.3 \times 10^9/\text{l}$. The percentage of blasts ranged from two to 94. Blasts were detected in all nine new untreated patients.

An analysis of 11 samples with blasts noted at microscopical examination and not generating blast associated alarms showed that in three of the samples the alarm associated with nucleated red cells was generated. This was confirmed by microscopical examination. The remaining eight unflagged samples were derived from patients receiving treatment. During treatment blasts may become reduced in size and therefore be included in the lymphocyte count.² Such blasts will not produce an alarm and will not be detected. Twelve per cent of