

	PRP	N Platelets/von Willebrand's PPP	von Willebrand's Platelets/N PPP
Case 19	Abnormal	Normal	Abnormal
All other cases	Abnormal	Abnormal	Normal

Table

normal VIII-related protein, as described by Holmberg and Nilsson (1973).

The three patients to whom cryoprecipitate was given all showed a post-infusion correction of Ristocetin aggregation, although the response of factor VIII and VIII-related protein varied in each case.

To the standard definition of classical von Willebrand's disease, it is now possible to add abnormal Ristocetin-induced aggregation and reduced or absent levels of factor-VIII-related protein. However, more variants of this disorder, two of which have been discussed in this paper, are likely to be described.

#### References

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#### Thrombotic Tendency and the Efficacy of Long-term Oral Anticoagulant Therapy as Demonstrated by Laboratory Tests

R. D. EASTHAM (*Frenchay Hospital, Bristol*) Following haemorrhage, trauma, surgery, or thrombosis, or in association with carcinoma, the plasma-activated partial thromboplastin clotting time (APTT) tends to be at the lower end of the normal range, or even below it. There is a direct correlation between the prothrombin ratio and the corresponding APTT in blood samples taken from patients treated with long-term oral anticoagulants. In patients treated with oral anticoagulants following venous thrombosis, at any given prothrombin ratio value, the corresponding APTT tends to be lower than in patients with mitral valve disease or following myocardial infarction, similarly treated. In an attempt to define this difference, 5088 results of prothrombin ratios and their corresponding APTT values obtained from 435 patients during 4564 months of anticoagulant therapy have been plotted on a grid.

It was found that there was a highly

significant difference in the distribution of results from patients following myocardial infarction and those following venous thrombosis, whereas there was no significant difference in results from patients following myocardial infarction and those with mitral valve disease. Similarly, there was no significant difference between results from patients treated following venous thrombosis and those who had been treated following cerebrovascular damage. There was evidence of significant change in response to treatment after three months following postoperation venous thrombosis and after one year following so-called 'spontaneous' venous thrombosis, but there was no significant change in response in patients treated following myocardial infarction, during their first, second, or third years of treatment.

#### Quality Control Trials in the British System for Anticoagulant Control

L. POLLER, J. M. THOMSON, AND I. LECK (*Withington Hospital, Manchester*) The British system for anticoagulant control depends on an official national reagent, the British Comparative Thromboplastin (BCT) and a national system of reporting prothrombin time results, the British Corrected Ratio. There have been eight national quality control studies in Britain in the last two years involving nearly 300 hospitals.

The underlying assumption with the British reference scheme using the BCT was that all participating hospitals would obtain similar results using the national reagent and the recommended prothrombin time technique as described in the Association of Clinical Pathologists' Broadsheet. Quality control trials were designed to test this principle. Studies involved the use of both test thromboplastin reagents and lyophilized plasma samples. The following points emerged: there was considerable individual variation in results from hospital to hospital. Some hospitals tended to produce consistently higher ratios than others.

Three different methods of dealing with the problem appear to be required: (1) a

programme of technical training to focus attention on the technical variables of the prothrombin time test; (2) the widespread provision of the standardized Manchester thromboplastin reagent for use in all routine prothrombin time tests; (3) the regular and widespread provision of standardized lyophilized plasma quality control samples.

The British system for anticoagulant control based on the use of a national thromboplastin reagent with a national system of reporting supported by national quality control studies using lyophilized plasma preparations thus appears to offer a model which many countries abroad have begun to copy to solve their own national problems. Good progress has already been made in this direction in some Commonwealth countries and in South Africa.

#### A Comparison of Different Methods of Detecting Mucin in Adenocarcinoma of the Lung

A. KENNEDY AND P. D. BURGIN (*Royal Infirmary, Sheffield*) The correct classification of carcinomas of the lung is not only of therapeutic and prognostic importance but is also considered to have epidemiological and aetiological significance. Histological tests for mucin are essential in the classification of lung tumours but there is little information available about the influence of the method of detection used on the results obtained. Five established staining techniques were tested using paraffin blocks from surgical specimens of 81 human lung tumours diagnosed as adenocarcinoma, ie, tumours of WHO type III.

Mowry's alcian blue-PAS technique gave the highest proportion of positives (93%), slightly fewer (90%) being obtained by the PAS technique alone. Both these methods were influenced by the presence of cytoplasmic hyaline globules, structures which cannot be regarded as mucin. The stain recommended by the World Health Organization was also influenced by the presence of hyaline globules, was less frequently positive than the PAS techniques, and was considered to have no special advantages. The aldehyde fuchsin-alcian blue sequence was positive in only 83% of cases but provided some information about the type of mucin present. Southgate's mucicarmine also detected mucin in only 83% of cases.

It was concluded that the apparent

incidence of adenocarcinomas may be influenced by the staining methods used. Some standardization of technique is desirable and the alcian blue-PAS combination appears to be the most satisfactory.

### The Nuclear Channel System of the Human Endometrial Glandular Cell

I. A. R. MORE AND E. M. ARMSTRONG (*Western Infirmary, Glasgow, introduced by R. N. M. MACSWEEN*) Endometrial curettings from 56 healthy women at all stages of the menstrual cycle were surveyed for the occurrence of nucleolar channel systems. Typical nucleolar specializations were noted in 14 of 26 women biopsied between day 13 and day 26 of the menstrual cycle and were observed most commonly and in greatest numbers between day 17 and day 20.

The nucleolar channel system occurs as an ordered, angular mass of interdigitating membrane-bound tubules of 60-100 nm diameter embedded in a dense granular matrix surrounding a core of lightly granular material. It arises in association with an invagination of both inner and outer nuclear membrane.

Towards the end of the cycle the nucleolar channel system appears more commonly as a dense disordered mass of tubules lacking a central core, often occurring as a protrusion of the nucleus. Although such masses have not yet been positively identified free in the cytoplasm, micrographs suggesting extrusion of the channel system and possible incorporation into giant lysosomes are presented.

The function of the structure is discussed. In particular its appearance is linked with the presence of 17 B progestational steroids and it is suggested that the tubular system itself may be a manifestation of a specific hormone-induced gene derepression. The structure may therefore provide a pathway for the rapid transport of newly formed mRNA molecules into the cytoplasm where they could act as a template for new protein synthesis.

### Pyogenic Granuloma of the Urinary Bladder

C. K. ANDERSON (*University of Leeds*) Pyogenic granuloma of the urinary bladder is a condition found in a small group of patients presenting with severe lower urinary tract symptoms, usually pain, frequency, and haematuria. Seven cases

have been seen in a provincial urological clinic over a period of 12 years.

Clinically, the patients are usually in the fifth and sixth decades, although the conditions may be seen in younger patients. There is a preponderance of females to males (5:2 in this series). The urine does not contain malignant cells and there is no consistent pattern of urinary tract infection, most patients having a sterile urine on presentation or during the course of the condition. Intravenous pyelography is usually normal, but may show a dilated upper tract (2/7) or a filling defect in the bladder (1/7). On cystoscopy the lesion appears red and angry with irregular elevation of the bladder mucosa resembling an infiltrating neoplasm. The lesion usually appears single.

Histologically the lesion is always covered by intact mucosa in the early stages. The epithelium is usually regular. The submucosa contains congeries of vascular spaces with areas of vasoformative tissue infiltrated by inflammatory cells, including many pus cells. No organisms are seen in the fixed tissue preparations. Electron microscopy shows no inclusion bodies and no visible virus particles.

The lesion may regress spontaneously leaving an area of scar tissue under the bladder mucosa; in one case progression to leukoplakia occurred. Generally the lesion persists with continuing symptoms unless resected endoscopically or excised by segmental cystectomy. In two patients additional lesions have arisen. Immunological studies have been made on one patient and show an apparent deviation of complement into the lesion.

### Fibrin and Complement in Glomerulonephritis

A. M. DAVISON, D. THOMSON, AND MARY K. MACDONALD (*University of Edinburgh, Edinburgh*) Glomerulonephritis may be induced in experimental animals by immunological means and it is thought that some forms of human glomerulonephritis are due to such mechanisms. Immunological reactions may be associated with activation of the coagulation and complement systems with subsequent deposition of complement and fibrin.

Histologically it is possible to classify glomerulonephritis on the basis of morphological appearance. However it is now recognized that identical histological appearances may be produced by a wide

variety of aetiological factors and conversely a single precipitating factor may induce differing histological patterns. Electron microscopy is of further value in characterizing the ultrastructural features of glomerulonephritis, but it is not possible to determine the nature of deposited material by this method. Immunofluorescence microscopy is of considerable help in elucidating the composition of the material deposited within the glomerulus in a patient with glomerulonephritis. There is a good relationship in the site of abnormal material as observed by immunofluorescence and electron microscopy. In addition examination of the urine from patients with glomerulonephritis for the degradation products of fibrin and complement reveals a good relationship between their excretion and the presence of such material within the glomerulus.

It has been possible to demonstrate that the mesangial cell is responsible for removing material deposited within the glomerular capillary walls, and indeed for the ability to recover from a given insult. It may also be the case that the histological pattern is determined by the ability of the mesangial cell to remove adequately the products of immunological injury than by the nature of the primary aetiological factor.

### *Serratia marcescens* Infection in a General Hospital

W. A. BLACK, L. A. HATCH, P. BINNIE, AND JEAN NEWBERRY (*St Joseph's Hospital, London, Ontario, introduced by H. A. SISSONS*) In recent years increasing attention has been given to the role of *Serratia marcescens* as an organism causing severe and even fatal opportunistic infections in hospitalized patients, particularly in individuals whose host resistance has been compromised by disease or therapeutic measures such as antibiotic or antimetabolite therapy. The fact that the majority of reports of this type of infection have come from the USA is interesting, and whether this reflects a higher incidence in the occurrence of *Serratia marcescens* in that country or better methods of identification of the organism has been the subject of a previous communication. In the present study in a 600-bed Canadian teaching hospital, 114 strains of *Serratia marcescens* were isolated from 105 patients over the course of 10 months, 80 of the strains being isolated in the first five months of the