

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