

ation of serial sections showed that one diverticulum had ruptured (figure). This may account for the interstitial emphysema seen histologically and may provide an explanation for the clinical features.

A 13 year old girl developed a precipitous asthmatic attack from which she died a few minutes after the onset of breathlessness. The histological findings of the lungs were again those of interstitial emphysema and numerous bronchial diverticula. Around most of the diverticula there was a pronounced inflammatory cell infiltrate, composed predominantly of eosinophils, plasma cells, and lymphocytes.

Dunnill has suggested that diverticula present in asthmatic airways represent the mouths of mucous gland ducts.³ We propose that although they originate at the site of origin of these ducts, their evolution is comparable with that of diverticula of the intestine, gall bladder, and urinary bladder. The diverticula develop at points of least resistance in the muscular wall; in the colon this occurs at sites where vessels enter the muscle coat, but in the bronchial wall the weak point is likely to occur at the mouths of the mucous glands.

The features of these disease processes show a striking similarity in that they are all outpouchings of mucosa between muscle. In each, the lining epithelium may ulcerate, and pronounced inflammatory cell infiltration may occur in the mucosa, submucosa and peridiverticular tissues.

Consistent with diverticula at other sites, the cause of the bronchial diverticula is likely to be primarily mechanical, resulting from raised intraluminal pressure and changed smooth muscle contraction.⁴ Furthermore, we propose that the bronchial diverticula are of clinical relevance, for not only may the associated inflammatory changes be important in the pathogenesis of airflow obstruction in asthma, but if a diverticulum ruptures, interstitial emphysema may result and complicate the exacerbation of asthma.

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Multiple slit membranes and proteinuria

I read with interest the article by Harrison, Jenkins and Dick,¹ which recorded the presence of multiple slit membranes having a "step ladder" appearance in renal biopsies before and after transplantation from a patient with focal and segmental glomerulosclerosis.

I have found identical multiple slit membranes in rat kidneys after induction of simple protein overload proteinuria.² One reason for their apparent rarity may relate to the fact that they seemed to occur only in glomeruli showing intermediate levels of structural damage and that they are best shown after enhancement of staining by the use of tannic acid. I am convinced that they are the same structures as those described by Ryan, Rodewald, and Karnowsky.³

As protein overload proteinuria is not immunologically mediated and unlikely to be a toxic or basement membrane charge effect,⁴ it is highly debatable whether the slit membranes are in any way directly related to the initial causation of the proteinuria.

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Immunological abnormalities in myelodysplastic syndrome

Economopoulos *et al*¹ and Multi *et al*² have both recently drawn attention to the occurrence of immunological abnormalities in patients with myelodysplastic syndromes (MDS). Among the abnormalities reported were hypogammaglobulinaemia, hypergammaglobulinaemia, monoclonal gammopathy, and tissue autoantibodies. A new finding by the Bournemouth group was of a positive direct antiglobulin test (DAT) in eight of 98 patients.

We have studied 37 patients with various types of MDS presenting to us between July 1985 and October 1987. Eight (21%) had a positive DAT (six IgG, one C₃, one IgG plus C₃). Three of the eight had refractory anaemia (RA), three chronic myelomonocytic leukaemia (CMML), and two RA with excess of blasts (RAEB).

The high prevalence of positive DATs in MDS is not easily explained. A general increase in immunoglobulin production has been described in CMML,^{3,4} possibly caused by the release of B cell growth factors from activated monocytes. Alternatively, the Bournemouth group⁵ have suggested that an initial oncogenic event selects a clone of stem cells which retains the capacity to differentiate into both myeloid and lymphoid cells, both lineages being marked by functional abnormalities. Whatever the pathophysiological basis of this finding, a positive DAT is of considerable practical importance in a group of patients requiring frequent blood transfusion.

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