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the vessel wall with an associated infiltrate of neutrophil polymorphs, plasma cells and lymphocytes (fig 1). Eosinophil polymorphs were not seen. All the other hilar vessels showed no clinically important abnormality. Paraffin sections were stained using a standard peroxidase-antiperoxidase technique and positive staining for IgG, IgM, and C1q was seen in the arteritic lesions. The left ovary contained an endometriotic cyst. Histological material from the patient's original hysterectomy specimen was reviewed and no important abnormality found. When step sections of this material were cut, a definite arterial lesion was identified in the cervix (fig 2). To exclude systemic disease the patient underwent a full medical examination and several blood tests (including erythrocyte sedimentation rate, complement concentrations, and antibody screen) and these all yielded normal results. The patient has been followed up for 15 months and apart from persistent pelvic pain remains in good health at the time of writing.

The aetiology of isolated arteritis is unknown. Many forms of systemic arteritis are considered to be mediated by immunological mechanisms, and isolated arteritis may represent a localised type III hypersensitivity (Arthus) reaction.\(^2\) Antigens capable of initiating an Arthus type reaction in the ovarian hilum could ascend an intact and patent female genital tract. In this patient previous hysterectomy and the acute nature histological of the lesions make an ascending antigen very unlikely as a cause of ovarian hilar arteritis and it is unclear why the lesions should be apparently confined to branches of the right ovarian artery.

This patient had evidence of endometriosis and it is well recognised that foci of endometriosis which bleed usually cause a local inflammatory reaction. Necrotising arteritis is not a recognised association, and in this patient there was no endometriosis or haemosiderin deposition in the right ovarian hilum and the only inflammation was in the arteritic lesions. The possibility of a more subtle association between the arteritis and endometriosis cannot be excluded. Anti-endometrial antibodies have been described in patients with endometriosis\(^2\) and whether this is an epiphenomenon or not, these antibodies and their antigens could be important in the pathogenesis of the localised acute arteritis. The association between the ovarian and cervical lesions was interesting. Although there was no acute necrotising arteritis in the cervix, the changes seen could represent resolving lesions. The hysterectomy was undertaken two years prior to the oophorectomy so that the cervical and ovarian hilar lesions were distinct anatomically and temporally. Furthermore, in other series of isolated arteritis of the cervix\(^4\) the disease was apparently confined to that site, although the state of the ovarian hilar vessels is not mentioned specifically.

Polyarteritis nodosa may affect the female genital tract\(^6\) and the diagnosis of isolated arteritis rests on the exclusion of systemic disease.

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References

S100 protein and myoepithelial cells of breast

We recently applied a peroxidase anti-peroxidase technique for S100 protein to 121 breast lesions including 43 intraduct carcinomas.\(^1\) We found that the myoepithelial cells around ducts affected by intraduct carcinoma were negative; the myoepithelial cells of benign lesions were intensely positive.

Using a standard immunogold-silver technique\(^2\) for S100 protein, we have since found that the myoepithelial cells around affected ducts were positive. This serves as an illustration of the increased sensitivity of the method. Further evidence of abnormal cellular and nuclear activity of the myoepithelial cells is reflected in the number of their nucleolar organising regions—loops of DNA present in the nuclei of cells which possess ribosomal DNA and can be stained using a silver colloid technique.\(^3\) The average number of nucleolar organising regions per cell on a 200 cell sample reflect cellular and nuclear activity,\(^4\) and myoepithelial cells around affected ducts have 2–6 compared with an average of one of nucleolar organising region for myoepithelial cells in benign lesions. It seems that myoepithelial cells around ducts affected by intraduct carcinoma have changed nuclear activity and that S100 protein is in fact expressed by these cells but not in a way which can be detected by the peroxidase antiperoxidase technique.

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**Fig 2** Cervical arterial lesion. Transmural and perivascular scattering of lymphocytes, but no fibrinoid necrosis, in a small muscular arterial branch. (Haematoxylin and eosin.)
Acute crescentic glomerulonephritis as a complication of a Staphylococcus aureus abscess of hip joint prosthesis

We report a case of acute diffuse proliferative glomerulonephritis following a coagulase positive staphylococcal (S aureus) abscess around a hip joint prosthesis. A standard work on renal pathology describes only three personally observed cases of staphylococcal septicaemia without endocarditis, in association with proliferative glomerulonephritis, and cites a description of two cases associated with staphylococcal pneumonia. Furthermore, we are not aware of a previous case of acute diffuse proliferative glomerulonephritis occurring after a Staphylococcus aureus infection of a hip joint prosthesis.

A 75 year old man had a right total hip replacement followed by a transurethral resection of prostate two months later. Over the following month he became increasingly confused and feverish. Blood and urine cultures persistently showed Staphylococcus aureus infection. He was treated with vancomycin, velosef, and amikacin, but developed uraemia despite peritoneal dialysis and died three months after the first operation.

At necropsy about 100 ml of purulent material were found in a loculated thick walled abscess around the hip prosthesis. Blood and hip abscess culture showed Staphylococcus aureus infection. Histological examination of the kidney showed diffuse proliferative glomerulonephritis. The glomeruli contained numerous crescents, thrombi, neutrophil polymorphs and areas of necrosis.

Previous studies of diffuse proliferative glomerulonephritis due to coagulase positive staphylococci indicate an immune complex aetiology rather than a bacterial embolic one. Electron microscopy has shown distinct subepithelial deposits, immunofluorescence has shown granular deposits of C3 and IgG within the glomerulus, and staphylococcal antigen and serum complement have been repeatedly reported to be reduced. The localised nature of the abscess in this case would make the propagation of large septic emboli much less likely than immune complexes, further confirming the latter theory of pathogenesis.

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Seropositive donors. The use of intravenous CMV immunoglobulin has been shown to be an effective prophylactic agent in this group, but the serum is expensive and so its use has to be restricted to seronegative patients. The availability of a rapid and reliable test that can show antibodies to CMV is therefore necessary.

To assess the sensitivity and specificity of the latex agglutination test an initial study of 100 sera was made. These sera were all from known homosexuals presenting to a genito-urinary clinic. In a further study of patients awaiting bone marrow transplantation 13 sera were examined. All sera had been stored at −80°C before examination. In addition, three further sera from one patient, taken over a period of five months were examined—the patient was a 39 year old woman suffering from relapsed acute myeloid leukaemia. The sera were examined, both by a latex agglutination test (CMV Scan, Becton and Dickinson, Baltimore, Maryland) and an IgG ELISA test (Virenz G-CMV, Northumbria Biologicals Limited, Cramlington, Northumberland). The tests were performed exactly as stated in the instructions.

In the initial study of 100 sera from homosexuals there was 99% correlation between the two tests. Eighty sera gave positive results by both methods and 19, negative results. The remaining serum gave a positive result by latex but a negative result by ELISA. When both tests were repeated on this serum, both gave positive results. Of 100 sera examined by the ELISA test, there was one false negative result. In the study of sera from patients awaiting marrow transplantation there was a 100% correlation between the two tests. Of the transplant recipients, eight (62%) were positive and five (38%) negative.

The initial serum from the patient who had serial studies was received on 31 December 1985 and was positive by both methods. A further serum was received on 24 April 1986 and was still positive by both methods, though the ELISA was only weakly positive. Two further sera, received on 21 and 29 May 1986, were negative by both methods. These results were confirmed on retesting of the stored sera.

We agree with the findings of previously published studies that the latex agglutination test for CMV is both sensitive and specific. Furthermore, the test is rapid and easy to perform, making it suitable for use in non-specialist laboratories. Even in virology laboratories it compares favourably with other methods, particularly complement fixation tests which are known to be
S100 protein and myoepithelial cells of breast.

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