# Study of Focal Arteritis of the Epididymis

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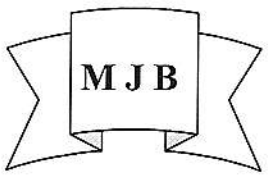


**Case report**

## Abstract

Necrotising arteritis apparently confined to one organ yet showing histological features similar to those seen in polyarteritis nodosa is now well recognised.

To report four cases of apparently isolated arteritis of the epididymis in patients who have no clinical evidence of systemic disease.

The clinical. Histological, and immunohistochemical features of four cases of appareltly isolated arthritis of the epidiymis are presented. The aetiology and pathogenesis of the condition are discussed. Immunoglobulin and complement were shown in in acute arterial lesions, but this is not conclusive evidence that isolatated arteritis is either an immune complex disease or a forme fruste of polyarteritis nodosa.

It is important that any patients with histological evidence of necrotizing arteritis should have full clinical, hematological, and biochemical investigations to exclude systemic disease because of the clinical differences between polyarteritis nodosa and isolated arteritis

## ألخلاصه

الالتهابات ألشريانيه التخريبية ظاهريا تنحصر في عضو واحد ولكن مع هذا فقد تبين في الوقت الحاضر ان لها مظاهر نسجيه مشابه للحالات المسمات بالالتهابات الشراينيه العقديه. البحث الحالي درس اربعة حالات لالتهاب شريان البربخ سريريا ونسجيا وباستخدام الامينوبيروكسيديز المناعي. كما نوقشت المسببات وكيفية حدوث المرض لهذه الحالات. المضادات المناعيه الامينوكلوبين والمتممات المناعية ظهرن في حالات الاصابه الشراينه إلحاده ولكن هذه ليست نتائج جازمة كون الإصابات الشريانيه المعزوله هي اما أمراض مناعيه او نوع من الالتهابات الشريانيه العقديه.

استنتجت الدراسه بان أي حاله لها مظاهر نسجيه لالتهابات الشريانيه التخريبيه يجب ان تجرى له جميع الفحوصات ألسريريه وفحوصات الدم والتحليلات الكيمياويه استبعادا لأي مرض جهازي بسبب الفرق في ألحاله ألسريريه بين الالتهابات الشريانية ألعقديه والالتهابات الشريانية المعزولة.

## Introduction

The lesions of polyarteritis affect arteries of medium and small caliber, especially at bifurcations and branchings. The segmental process involves the media, with edema, fibrinous exudation, fibrinoid necrosis, and infiltration of polymorphonuclear neutrophils, and extends to the adventitia and intima. Thrombosis and infarction or hemorrhage occur at this stage. Subsequently the regions of fibrinoid necrosis are replaced by granulation tissue, and the intima proliferates. Finally the involved segment is replaced by scar tissue with associated intimal thickening and periarterial fibrosis.

These changes produce partial occlusion, thrombosis and infarction, and palpable or visible aneurysms with occasional rupture [1,2]

Necrotising arteritis apparently confined to one organ yet showing histological features similar to those seen in polyarteritis nodosa is now well recognised. Since the first description of isolated arteritis in the appendix by Plaut [3] similar apparently isolated arteritis has been recorded in the gall bladder [4] uterine cervix [5,6] uterin body[7], skin[8], and breast9, included three cases of necrotizing arteritis; in one patient the disease was present only in the testis, but his subsequent clinical history is unknown. We report four cases of apparently isolated arteritis of the epididymis in patients who have no clinical evidence of systemic disease.

## Patients and Methods

### Case reports

### Case 1 and 2

A 41 and 33 year old men presented with a tender mass in the left testicle which had appeared suddenly three ten weeks previously respectively. There was no history of recent trauma. An injury to the same testicles some 5 and 7 years before had disappeared spontaneously. There were no other urogenital symptoms and the patients were otherwise fit and well. On examination there were a hard, irregular, tender nodule at the lower pole of the left epidiymises ; the right testicles were clinically normal. The patients underwent a left orchidectomy via an inguinal incision. They made an uneventful postoperative recovery and were in good physical health two years later. The resected testis's measured 6.5 × 3.5 × 3.0 cm and 8.5 × 4.5 × 5.0 cm respective. They showed no macroscopic abnormality. The lower pole of the epdidymis in one contained a well defined, hard white mass 4cm in diameter.

### Case 3 and 4

A 16 and a 20 years old men were noted to have an undescended right and left testicle respective at a routine medical examination. There was no history of trauma, there were no urogenital symptoms, and the patients were otherwise fit and well. On examination the testicles were in the inguinal canal and were small and non-mobile. The other testicles were clinically normal. The patients underwent unilateral orchidectomy. He made an uneventful postoperative recovery and is in good physical health six months later. The resected testis's measured 3.5 × 2.0 × 2.0 cm and 5.5 × 3.0 ×4.0 cm respective. The testis's, epidiymises, and cords appeared normal macrosopically. The patients were normotensive and neither was taking any drugs before presentation.

## Results

Table 1 shows the results of relevant postoperative haematological and biochemical investigations. All were within the normal ranges of the laboratory. Blood eosinophil counts were not presentation.

## Histology ( Fig.1)

Routine paraffin embedded tissue sections roughly 5µm thick were stained by haematoxylin and eosin, and elastic van Gieson. In case 1 and 2 the testis showed no appreciable histological abnormality. In case 3 and 4 there was complete absence of germ cells consistent with maldescent. There was a multifocal necrotising arteritis affecting the epididymis in all cases and of the spermatic cord in case 2, 3. The acute arteritic lesions were characterized by focal fibrinoid necrosis of the vessel wall with an associated infiltrate of neuerophil polymorphonuclear leucocytes and lymphocytes. Eosinophil polmorphonuclear leucocytes were not seen and the fibrinoid material. In some arteries the acute lesions were circumferential. Some arterial lesions

were characterized by pronounced intimal (fibrous) thickening and an infiltrate of lymphocytes in the muscular wall without fibrinoid necrosis. Around all the abnormal arteries there was a lymphocytic infiltrate of variable intensity, which was most striking around the lesions showing fibrinoid necrosis.

**Immunohistochemistry**

Paraffin sections were stained for IgG, IgM, IgD, IgAand components C1q and C3 using a standard peroxidase-antiperoxidase technique. Antisera was supplied by Dako Ltd. Positive staining was only seen in acute arteritic lesions (Table 2).

**Table 1** Haematological and biochemical results

| Case | Blood | | | Serum | |
|---|---|---|---|---|---|
| | Erthrocyte sedimentation rate (mm in the furst hour) | Haemoglobin concentration (g/dl) | White cell count ($\times 10^9$/1) | Urea concentration (mmol/l) | Cretinine coatinine concentration (µmol/l) |
| 1 | 8 | 14.5 | 6.5 | 4.2 | 83 |
| 2 | 2 | 13.2 | 7.3 | 4.4 | 88 |
| 3 | 10 | 12.8 | 8.2 | 4.6 | 85 |
| 4 | 15 | 14 | 5.4 | 4.1 | 79 |

Values are all within the laboratory normal ranges.

**Table 2** Immunohistological staining of acute arteritic lesions

| Case | IgG | IgM | IgA | IgD | CIq | C3 |
|---|---|---|---|---|---|---|
| 1 | + | + | - | - | + | - |
| 2 | _ | + | _ | _ | + | _ |
| 3 | + | + | _ | _ | + | _ |
| 4 | _ | + | _ | _ | + | _ |

+ = staining in acute arteritic lesions. - = no staining in acute arteritic lesions.

## Discussion

The diagnosis of isolated arteritis depends on the clinical exclusion of systemic disease in a patients who has histological evidence of a necrotising arteritis apparently limited to one organ. The histological picture is similar to that seen in minor differences in cases of isolated arteritis, notably the lack of thrombosis, aneurysm formation, or infarction[5]. In some reports the lesions are described as granulomatous[9-12] , but the presence of multinucleated giant cells close to disrupted fragments of arterial elastic lamina (a feature not specific to temporal arteritis) may occur secondarily to vessel wall damage[13]. Our patients had evidence of necrotising arteritis of the epdidymis without clinical evidence of systemic disease.

The aetiology of isolated arteritis is unknown. Necrotising arteritis is well recognized as a complication of irradiation. Many forms of arteritis are considered to be mediated by immunological mechanisms. Isolated arteritis may represent a localised type II

hypersensitivity (Arthus) reaction[13]. Such hypersensitivity to an inhaled antigen has been suggested as one of the causes of the necrotising vasculitis, Wegener's granulomatosis, although no antigen has yet been identified[13]. Sites such as skin, appendix, cervix, uterus, and gall bladder are regularly exposed to a wide variety of antigenic material and an Arthus type reaction can reasonably be proposed as a cause for isolated arteritis at these sites. Similarly, the breasts may be exposed to new antigens during pregnancy and lactation, although the recorded cases of isolated arteritis in this organ have occurred in middle aged and elderly women9. Potentially antigenic material may be localized in the epididymis following trauma or retrograde flow of urine down the vas deferens8. In our two cases there was no history of recent trauma that could explain the acute arterial lesions. Neither patient complained of urinary symptoms, but we do not know whether there were retrograde flow of urine down the vasa, the likely mechanism of localisation of antigen to the epididymis if a type III hypersensitivity reaction is entailed in the pathogenesis of the arterial lesions. The immunohistochemical staining of our cases were not, however, conclusive evidence of an immune complex mediated disease. The presence of immunoglobulin and complement in acute arteritic lesions may be due simply to passive diffusion of plasma constituents through arterial walls damaged by another mechanism.

We have already noted the histological similarities between the lesions of isolated arteritis and polyarteritis nodosa. Polyarteritis nodosa is considered to be an immune complex mediated disease, and 30% of patients with the disorder have circulating hepatitis B antigen14. The positive immunohistochemical staining for IgM and C3 which we have shown in our cases of isolated arteritis is similar to the findings of other workers in the acute arterial lesions of polyarteritis nodosa[14].

This similarity may not have much significance since we have already noted that the finding of immunoglobulin and complement in arteritic lesions dose not prove an immune complex pathogenesis.Clinically, the two diseases are strikingly different. Polyarteritis nodosa, if untreated, has a poor prognosis; death, usually resulting from renal failure or cardiovascular or intestinal complications8, [15].Isolated arteritis is often asymptomatic and has an excellent prognosis.

## Conclusion

It is important that any patients with histological evidence of necrotizing arteritis should have full clinical, hematological, and biochemical investigations to exclude systemic disease because of the clinical differences between polyarteritis nodosa and isolated arteritis.

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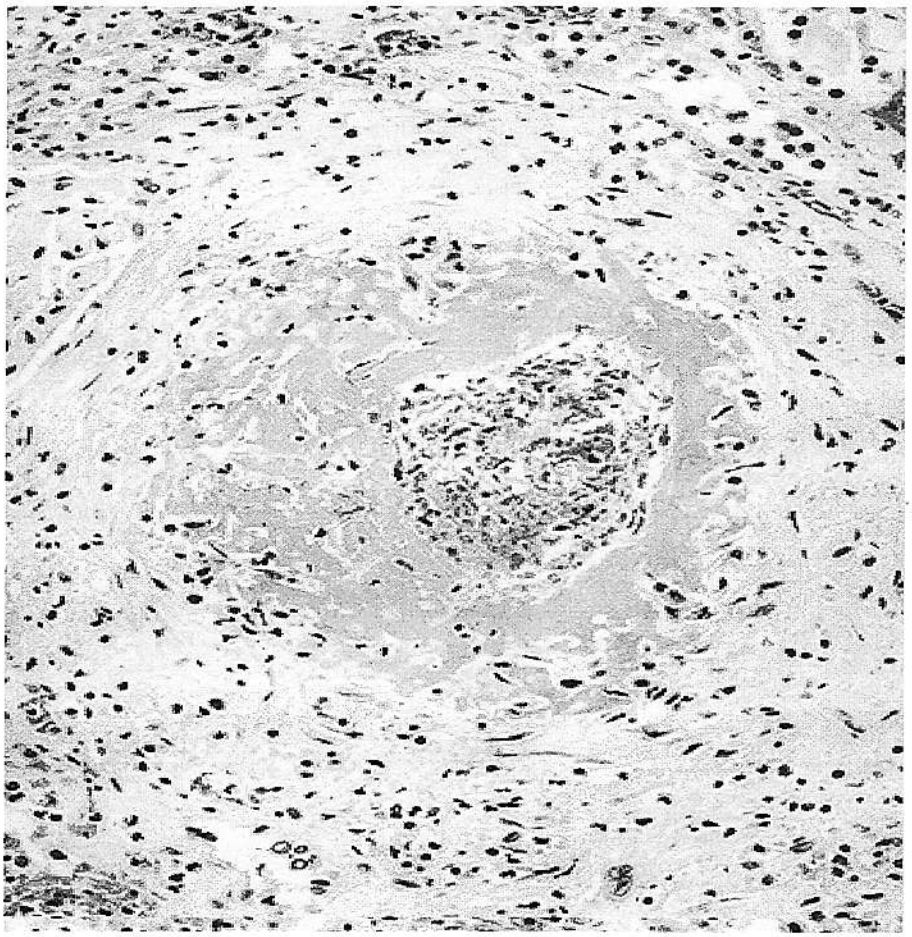

**Figure 1** Histological evidence of necrotizing arteritis