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Case report

Primary granulomatous giant cell polyphlebitis of visceral veins

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Abstract. A case of granulomatous giant cell phlebitis occurred in the mesenteric veins of a 38-year-old man, resulting in segmental infarction of the ileum. Multiple epitheloid granulomas with giant cells of the Langhans type were situated in media/adventitia of small and middle-sized mesenteric veins with subsequent thrombotic venous occlusions. No involvement of arterial vessels could be detected. The aetiology of the disease remains unknown. Known types of vasculitis were excluded. It was assumed that this is an example of in immunological vasculopathy but this could not be proved.

Key words: Polyphlebitis – Granulomatous giant cell phlebitis – Immunopathic phlebitis of visceral veins

Introduction

Polyphlebitis may occur as primary (idiopathic) or secondary "migrating phlebitis" with a characteristic histopathological appearance, as a rare type of febrile epidemic tropic phlebitis (Manson-Bahr and Charters 1946; Fisher et al. 1947; Pearson 1953), and occasionally in relation to rheumatoid disease (Schnack and Wewalka 1957). Only three cases of primary granulomatous giant cell polyphlebitis have been reported in the literature (O'Donnell and Kennedy 1954; Chakravarty and Chakravarty 1955; Faye-Petersen and Frankel 1991), all involving superficial extremity veins. We report on the first case of an apparently primary granulomatous giant cell polyphlebitis of mesenteric veins in a 38-year-old man resulting in intestinal infarction.

Case report

The 38-year-old man with an inconspicuous previous history had to be operated on for an acute haemorrhagic infarction of the ileum due to thrombotic occlusions of many mesenteric and parts of the portal, superior mesenteric and splenic veins. During the following 6 months he suffered from relapsing intestinal symptoms. Thorough examinations including gastroscopy, contrast dye radiology of the intestinal tract, abdominal sonography, Duplex sonography of the blood vessels, electrocardiogram, ophthalmological, otorhinolaryngological and neurological examinations, microbiological investigations of the intestinal contents, cardiac and pulmonary functional tests, urinanalysis, chemical laboratory tests, coagulatory tests, enzyme reactions, blood protein serology, haematological and immunological tests did not reveal any indication of a systemic or local disorder which might have explained the development of a mesenteric thrombosis. The blood sedimentation rate was 43 mm/1 h, 84 mm/2 h. Electrophoresis and examinations for IgA, IgG and IgM were normal, the rheumatoid factor was negative and no antinuclear or antimitochondrial antibodies were detected. The only findings were an alcoholism-related chronic gastro-duodenitis, slight oesophageal varices and liver cirrhosis with normal enzyme functions. There was a tobacco-related chronic bronchitis. With bed rest and medical treatment with alkaline aluminium saccharose sulphate the symptoms gradually subsided; the patient was released and has since not suffered from relapses.

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Pathological findings

The resected area of the ileum measured approximately 1 m and showed bluish discoloration indicating early haemorrhagic infarction. Several mesenteric veins contained dark coagulated blood. The mesenteric lymph nodes were slightly enlarged.

The intimal mucosa was hyperaemic with occasional extravasation of blood, areas of fibrinoid necrosis and infiltration by polymorphonuclear leucocytes and lymphocytes. The small sub-mucosal veins and occasionally also small submucosal arteries contained fresh thrombi without inflammatory wall alterations. The main changes were located in the small and middle-sized veins of the mesentery. Adventitia and media contained multiple granulomas consisting of loosely arranged epitheloid cells, a few lymphocytes and occasional multinucleate giant cells of the Langhans type. The walls of smaller veins showed areas of fibrinoid necrosis and diffuse infiltration by lymphocytes and occasional polymor-

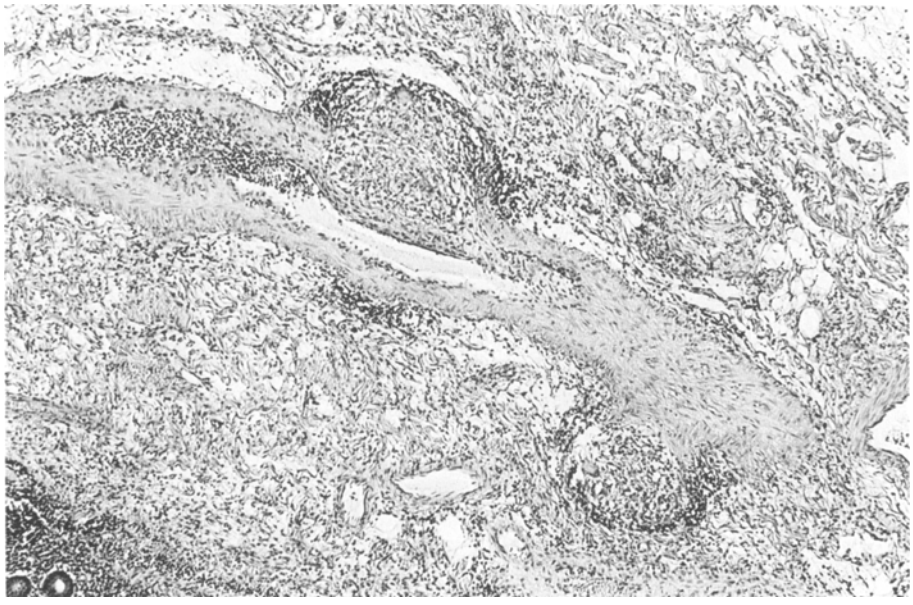

Fig. 1. Intramural epitheloid granulomas with giant cells of the Langhans type in the media/adventitia of a mesenteric vein. H & E, × 50

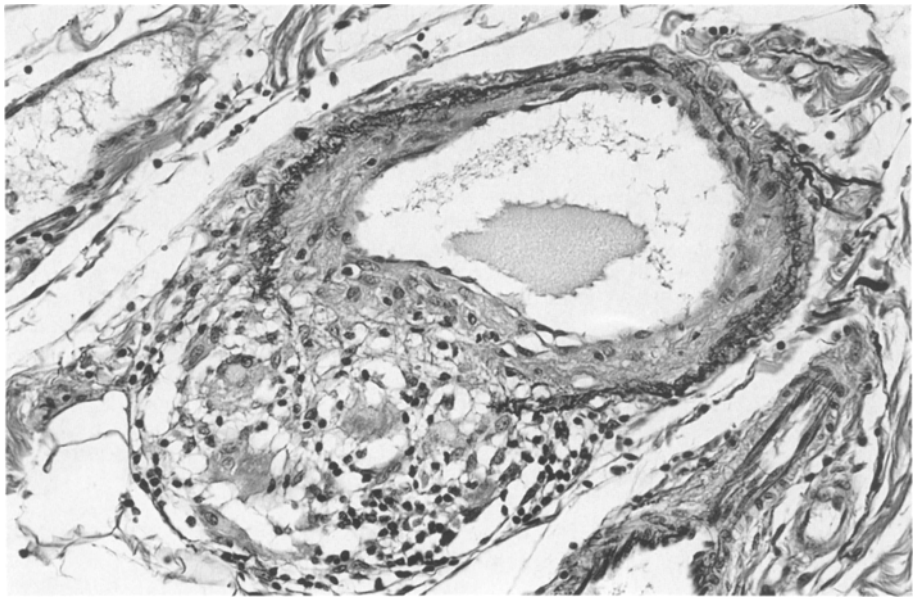

Fig. 2. Intramural epitheloid granuloma with destruction of the elastic lamella. Elastin, × 80

phonuclear leucocytes. At the site of granulomas the internal and/or external elastic lamellae were focally destroyed. Para- and perivenous cell aggregations consisted mainly of lymphocytes. Many small veins contained fresh fibrin-rich thrombi. The interstitial tissue was oedematous, full of fibrinous exudate and diffusely arranged lymphocytes. Occasional denser cell accumulations contained lymphocytes, histiocytes, plasma cells and occasional polymorphonuclear leucocytes, but no eosinophils or giant cells. Granulomas were found only in the vascular wall. Special stains (Giemsa, Ziehl-Neelsen, periodic acid Schiff) reveal no microorganisms within the granulomas or in the interstitial tissue. (Figs. 1, 2).

The arterial walls were not involved. Thorough examination with serial sections of 25 paraffin blocks revealed no arterial inflammatory changes.

The slightly enlarged mesenteric lymph nodes appeared depleted of cellular components. They contained fibrinous exudate and show occasional granulomas without giant cells and without any connection to blood vessels.

Primary antibodies were detected using biotinylated antibodies against mouse- or rabbit-immunoglobulins and the avidin-biotin complex peroxidase method with diaminobenzidine as a substrate: monoclonal antibodies-(mouse): CD 4, 15, 20, 43, 45, 45 RO, 68. polyclonal antisera(rabbit): CD 3, kappa, lambda, IgA, IgG, IgM, lysozyme. All antibodies were from Dakopatts (Copenhagen, Denmark). Results showed an extensive inflammatory infiltrate of all vessel walls and around the vessels, consisting of a few B-cells (CD 20), many T-cells (CD 3, 4), many granulocytes (CD 15, 68, lysozyme), and

Table 1. Findings of the three previous cases from the literature

Authors	Age	Sex	Localization	Histology	Clinical findings
O'Donnell and Kennedy 1954	31	Male	Both forearms	Granulomatous polyphlebitis with giant cells in the adventitia	Febrile illness ESR 6 mm Favourable response to Achromycin
Chakravarty and Chakravarty 1955	28	Female	Right forearm and thighs	Granulomatous polyphlebitis with giant cells at the junction of outer and middle coats	Fever and malaise ESR 144 mm. Liver and spleen enlarged
Faye-Petersen and Frankel 1991	24	Female	Upper and lower extremities	Granulomatous polyphlebitis with giant cells	Low-grade fever, fatigue, myalgias ESR 54 mm Rapid response to corticosteroids

polyclonal plasma cells (kappa+lambda+). The giant cells were negative for all markers.

A diagnosis of granulomatous giant cell polyphlebitis of mesenteric veins with subsequent thrombotic occlusions was made.

Discussion

Our case cannot be attributed to any known vasculitis syndrome. Polyarteritis nodosa and similar vasculitides may be connected with gastro-intestinal manifestations (Camilleri et al. 1983; Churg and Churg 1991). However, they do not affect venous vessels exclusively and do not induce giant cell granulomas. Vasculitides characterized by giant cell granulomas such as generalized giant cell arteritis, Takayasu's arteritis and the syndromes of Wegener and of Churg-Strauss were excluded clinically. Visceral manifestations of thromboangitis obliterans (Buerger's disease) are very rare (Deitch and Sikkema 1981; Rosen et al. 1985) and occur in connection with peripheral artery involvement. Isolated granulomatous vasculitides with giant cells have occurred in striated muscle, skin, gall bladder, appendix, breast, liver, gastrointestinal tract, male and female reproductive tract (Faye-Petersen and Frankel 1991). They always involve arterial vessels. No clinical or microbiological evidence for other diseases which may induce epitheloid cell reactions such as tuberculosis, sarcoidosis, syphilis, brucellosis or histoplasmosis could be detected. An angiotropic proliferative lymphatic disorder was excluded by immunohistochemical examination. Migrating phlebitis which may occasionally affect deep extremity veins or rarely also visceral veins (Bollinger and Leu 1975; Leu and Bollinger 1978) presents with a different histopathology (microabscesses with giant cells within the thrombi). No histopathological or clinical resemblance exists to the cases of epidemic polyphlebitis of Manson-Bahr and Charters 1946, Fisher et al. 1947 and Pearson 1953. A relationship to any of the alcoholism- or tobacco-related conditions of our patient cannot be assumed. The histopathological findings in this case are identical with those described by O'Donnell and Kennedy 1954; Chakravarty and Chakravarty 1955; Faye-Petersen and Frankel 1991 (see Table 1). Whereas these three cases were localized in superficial veins of the extremities, our case appears to be the first one described in visceral veins.

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