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Vasculitis

Vasculitis is a term used to describe a series of conditions in which there is inflammation of the blood vessels.

Vasculitis can be primary (occurring on its own), or secondary (as a result of infection, or in association with another condition such as rheumatoid arthritis).

The effects might be transient or result in longer-term damage to the vasculature.

Epidemiology

Vasculitis is rare. About 14,000 new cases are diagnosed in the UK each year[1]. A UK general practice study found that the most common type - polymyalgia rheumatica (PR) - had an estimated cumulative prevalence (the number of people who had ever had the disease over a given period of time) of 2.27%. The corresponding figure for the next most common - giant cell arteritis (GCA) - was 0.41%[2].

Aetiology[3]

- Idiopathic (45-55%).
- Infection (15-20%) - eg, Henoch-Schönlein purpura, septic vasculitis, upper respiratory tract flares of granulomatosis with polyangiitis (Wegener's granulomatosis), polyarteritis nodosa (PAN).
- Inflammatory disease (15-20%) - eg, systemic lupus erythematosus (SLE), rheumatoid arthritis, Crohn's disease and ulcerative colitis.
- Drug-induced (10-15%) - eg, sulfonamides, beta-lactams, quinolones, non-steroidal anti-inflammatory drugs (NSAIDs), oral contraceptives, thiazides, anti-influenza vaccines. Chemicals such as insecticides and petroleum products.
- Neoplastic (<5%) - eg, as a result of a paraproteinaemia or lymphoproliferative disorder.

Classification

Many attempts have been made to classify this group of diseases and several classifications are in existence. The Chapel Hill Consensus Conference (CHCC) broadly classified the causes of vasculitis into infective and non-infective and then went on to classify the non-infective causes further[4].

Infective causes are considered as those where there is *direct* invasion by pathogens into the vascular wall, resulting in inflammation. Examples include rickettsial vasculitis, syphilitic aortitis and aspergillus arteritis.

For non-infective causes, the CHCC classified vasculitis into:

Large-vessel (eg, GCA)	Single-organ (eg, isolated aortitis)
Medium-vessel (eg, Kawasaki disease)	Systemic disease-associated (eg, rheumatoid)
Small-vessel (eg, immune complex)	Probably associated (eg, hepatitis B, hepatitis C)
Variable-vessel (eg, Behçet's disease)	

The CHCC classification applies to vasculitides (the pleural of vasculitis) in which antineutrophil cytoplasmic antibody (ANCA) is present in the blood. This is known as ANCA-associated vasculitis (AAV). Non-AAV usually occurs in conditions in which immune complex deposition occurs, (eg, Henoch-Schönlein purpura) or pan-neoplastic phenomena[5].

Presentation

Vasculitis can affect any system, producing a wide range of symptoms. Although unspecific symptoms such as arthralgia and lethargy may be present for some time, frequently the first noticeable sign of a vasculitis will be as a skin lesion and will therefore present as such.

	Small-vessel vasculitis (Sometimes referred to as hypersensitivity vasculitis or cutaneous leukocytoclastic vasculitis (LCV))	**Medium-sized vessel vasculitis**	**Large-vessel vasculitis** (ie aorta and major branches)
Presentation	• Palpable purpura 1-3 mm (may join to form plaques ± ulcer) • Tiny papules • Splinter haemorrhages • Urticaria • Vesicles • Livedo reticularis (rare)	• Ulcers • Digital infarcts • Nodules • Livedo reticularis • Papulo-necrotic lesions • Hypertension (damage to the renal vessels)	• End-organ ischaemia (eg, TIA/CVE) • Hypertension • Aneurysms • Dissection ± haemorrhage or rupture
Differential diagnosis	• Henoch-Schönlein purpura • Cryoglobulinaemic vasculitis - idiopathic, hepatitis C • Drug hypersensitivity reactions • Infections (eg, beta-haemolytic streptococcus, viral hepatitis, HIV) • Collagen vascular disease (eg, rheumatoid arthritis, Sjögren's syndrome, SLE) • Inflammatory bowel disease • Neoplastic (eg, hairy cell leukaemia) • Causes of larger-vessel vasculitis (uncommon)	• Wegener's vasculitis • Churg-Strauss syndrome • Polyarteritis nodosa • Kawasaki disease • GCA • Behçet's disease, • Rheumatoid arthritis • Infections (eg, tuberculosis) • Erythema induratum (of Bazin)	• Kawasaki disease • Behçet's disease • Rheumatoid arthritis • Syphilis and tuberculosis • Aorta, particularly GCA and Takayasu's arteritis

Diagnosis of the skin lesion can provide information as to what calibre of vessel may be involved, potential diagnosis and where else in the body evidence of vasculitis should be sought [6, 7].

Full history should be taken, particularly with respect to:

- Length of symptoms/signs.
- Recent illness.
- Recent exposure to drugs, vaccines and chemicals.
- Other symptoms - eg, arthralgia, cough, ENT symptoms, numbness and paraesthesia.
- Detailed review of all systems.

In view of the systemic nature of many vasculitic diseases, a complete physical examination should be carried out, including CNS and ENT examination.

Investigations

Investigations should be tailored to the possible cause. For all patients suspected of having a vasculitic lesion, consider:

- FBC and differential cell count.
- U&Es.
- LFTs.
- Inflammatory markers.
- Urine culture, microscopy.
- Urine dip test for glucose, protein and blood.
- Hepatitis serology (types B and C are associated with PAN and mixed cryoglobulinaemia respectively).
- Cryoglobulins.
- Complement levels.
- Rheumatoid factor.
- CXR.

Also consider:

- Echocardiogram and blood cultures if there is cardiac murmur present.
- Antinuclear antibodies (ANAs) if there is medium-sized vessel involvement and any suggestion of connective tissue disease.
- Skin biopsy taken during the acute stage.
- Imaging - the use of imaging is a relatively new approach but MRI and colour Doppler ultrasonography both have potential in diagnosis of large-vessel vasculitis [8].

Differential diagnosis

There are several other conditions which may mimic cutaneous vasculitis and these must be considered when arriving at a diagnosis. Some of the more common ones include:

- Insect bites.
- Trauma.
- Pigmented lesions.
- Purpura (eg, due to low platelet count).
- Disseminated intravascular coagulopathy.
- Pityriasis lichenoides.

Management

The treatment will vary considerably according to the underlying cause and the severity of symptoms and their duration. It may include:

- Avoiding the precipitating factor, such as drugs or chemicals.
- In general, corticosteroids are administered to control acute symptoms and laboratory evidence of systemic inflammation. After control is achieved, attempts may be made to taper dosing over a month.
- Options such as immunosuppression with cyclophosphamide, azathioprine, methotrexate or tumour necrosis factor blockade may be used.
- For ANCA-associated vasculitis, European guidelines recommend the use of mycophenolate mofetil [7].
- Use of plasmapheresis or intravenous immunoglobulin are options for refractory vasculitis.
- There is increasing evidence for biological agents in vasculitis [9].
- Morbidity due to cumulative corticosteroid dose (as well as toxicity from immunosuppression) must be weighed in the long-term plan of care.

Surgical

Occasionally, surgery might be indicated. The aims of this depend on the area affected but may be to open up or divert blood flow around an area of blockage, to take a sample (biopsy) or to repair an area of organ damage.

Examples include:

- Stenting of stenotic vessels, which is increasingly used. Balloon dilatation has also been used to improve renovascular flow.
- Patients with granulomatosis with polyangiitis (Wegener's granulomatosis) may develop subglottic stenosis, which is amenable to balloon dilatation.

Follow-up

- ESR may be used as a marker of disease activity.
- Patients with elevated cytoplasmic antineutrophil cytoplasmic antibody (c-ANCA) titres may have normal levels during periods of disease control and increasing ones with disease activity.

Prognosis

This is related to the degree of end-organ involvement.

Complications

Complications are varied and are dependent on the underlying cause, size of vessel and organs affected. They may include:

- Renal insufficiency
- Digital gangrene
- Pulmonary haemorrhage
- CNS infarction
- Arterial or venous thrombosis
- Subglottic stenosis

Further reading & references

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Document ID: 1728 (v25)	Last Checked: 03/11/2016	Next Review: 02/11/2021