Ross River fever

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Although Ross River fever is common, it remains poorly understood in the community. Dr Bossingham presents a practical approach to treating and counselling patients with this self-limiting disorder.

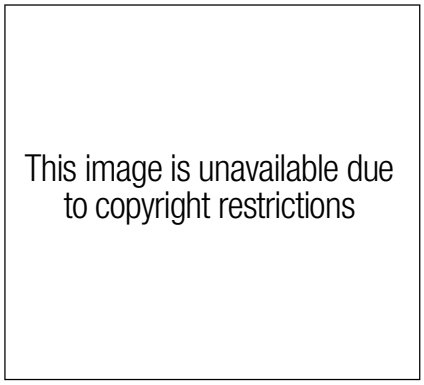

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Figure. Ross River virus life cycle. A virion is engulfed by a cell membrane (right), releasing its protein core and contained RNA (lower right). Newly synthesised viral components are assembled and new virions bud from the surface (left).

Up to approximately 8000 cases of Ross River fever (also called Ross River virus disease) have been reported to occur in Australia each year.[1] The disease is endemic in the tropics, presenting all year round but more commonly during the warm and wet summer months. Epidemics have, however, occurred in many other parts of the country.

Ross River fever was first described by a GP in NSW during the 1920s, but historical documents suggest that an 'epidemic rheumatism' was known to the indigenous population before colonisation. The disease remains poorly understood in the community, which results in loss of income and reduced productivity, chronic symptoms and unnecessary expenditure on prescription and nonprescription drugs. It has been calculated that $2.8 million is spent annually on serological testing.[2] For an acute self-limiting disorder, these facts suggest an educational and perceptual problem that requires urgent attention.

Epidemiology

The disease results from inoculation of the Ross River virus by an infected mosquito from one of a number of species. The virus reservoir includes a number of native animals, especially wallabies and bandicoots, and humans are irrelevant in its natural history. Infection is most likely to occur in people with a home, job or pastime that takes them to irrigated pastures, low lying bush or marshlands, saltflats and similar environs.

Clinical features

Symptoms of Ross River fever appear between five and 15 days after inoculation. The classic triad of fever, rash and arthritis or arthralgia occurs in only 50% of clinically apparent cases.

Joint symptoms are the most common presenting feature, occurring in 98% of cases. The arthritis is as likely to be pauciarticular (occurring in one to four joints) as polyarticular (occurring in more than four joints). Several patterns of joint involvement have been recorded, but none is diagnostic. Acute effusions can occur, especially in the larger joints. Joint pain can be profound in the acute stages – its severity has been likened to that experienced by patients awaiting hip or knee joint replacement. Spontaneous resolution is the rule, with articular symptoms disappearing in an average of three days (range, one to 37 days).

The rash is rather nonspecific. Generally, small, erythematous and nonpruritic macules occur on disparate parts of the body, but other lesions have been described. Complete resolution is usual.

Nonspecific symptoms of tiredness, malaise, fatigue and depression are common. In the 1990s, several studies using data from postal questionnaires found that chronic symptoms were a regular occurrence, often lasting for several years. Recently, two prospective studies in Queensland confirmed that symptoms resolve completely within three to six months from onset, and showed that most patients who complain of joint symptoms persisting after Ross River fever showed signs of other rheumatic disease predating virus infection.[3,4] It is important to state that persistent joint symptoms – especially chronic effusions, deformity or x-ray change – suggest an alternative diagnosis.

Recurrence of Ross River fever is often discussed, but has not to my knowledge been proven. Serological diagnosis is a problem with some patients having confounding results (see below), and many diseases can cause intermittent joint pain with systemic symptoms.

Ross River fever affects both sexes equally, but clinically apparent disease in children is uncommon. It is unclear if this is because it is indistinguishable from the other childhood exanthemata or because it is not sought in investigation.

Diagnosis

The diagnosis of Ross River Fever should be considered in any patient with an acute

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Table. Important differential diagnoses for Ross River fever

Other arthritogenic diseases
Dengue fever
Human parvovirus (erythema infectiosum)
Exanthemata of childhood (including rubella vaccination)
Bacterial diseases
Reactive arthritis (dysenteric, sexually transmitted)
Rheumatic fever
Gonococcal arthritis
Other specific fevers
Malaria
Tick typhus
Scrub typhus
Leptospirosis
Rheumatic diseases
Rheumatoid arthritis
Systemic lupus erythematosus
Seronegative disease (e.g. psoriatic arthritis)
Osteoarthritis, acute exacerbations
Henoch–Schönlein purpura and other vasculitides
Erythema nodosum
Drug reactions

onset arthritis, especially after travelling through or living in an endemic area. Differentiation from dengue fever is essential – the latter can rapidly assume epidemic proportions and cases may progress to the potentially fatal haemorrhagic form. A multitude of conditions need to be considered in the differential diagnosis – some important ones are listed in the Table.

Diagnostic ELISA kits are commercially available for Ross River fever. Confirmation of disease can only be made by demonstrating either an increase in titre of IgG antibodies over a two-week period, or the presence of IgM and later appearance of IgG antibodies. Merely demonstrating the presence of IgG antibodies on a single occasion is irrelevant, and repeatedly performing the test is wasteful and inappropriate. It has been shown in endemic areas that more than 30% of the adult population have IgG antibodies for Ross River virus.[2] IgM antibodies can remain positive for long periods after acute infection and can cause confusion – reference to the clinical situation, and possibly a repeat test, should clarify matters.

Systemic signs of infection, such as a transient rise in ESR or CRP, are common. Other abnormalities, such as neutrophilia or neutropenia, thrombocytopenia or altered liver function, are most uncommon and should prompt a search for an alternative diagnosis.

Treatment

When a diagnosis of Ross River fever has been confirmed, it is essential to reassure the patient about the prognosis for the condition. The joint pain may be severe, so symptomatic treatment with analgesics or anti-inflammatories should not be withheld – this will prove sufficient for the majority. Local or low dose systemic corticosteroids may be necessary for a short period; a requirement for longer term use of these drugs should cause the diagnosis to be reviewed.

A prompt return to normal activity is the expected outcome, and large doses of positive reinforcement may be necessary to overcome the widespread belief that Ross River fever is a cause of chronic disability. Acknowledging that the pain can be severe in the short term and that a short period of rest from work will be necessary should be sufficient for most patients.

Prevention

Consideration of preventive measures is relevant. Use of insect repellents and recognition that mosquitoes are more active at dawn and dusk can reduce infection rates. There has been effort to produce a vaccine in the past, but this is not now under scrutiny.

Conclusions

Ross River fever is a common, self-limiting disorder that should be easily diagnosed and treated. Recent studies have suggested that disease follows inoculation in most cases (or at worst, one in three), but the high level of seropositivity in endemic areas and the number of patients who express surprise when they are shown to have had contact with the virus makes these claims doubtful. The lack of disease in children merits further study, and may answer some questions about Ross River fever.

From a public health perspective, the exclusion of dengue fever is essential in a patient with recent onset of joint symptoms, especially if there is fever or a rash. This is particularly important in North Queensland, with its transient holiday population. MT

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