Coxsackie B virus

The great pretender

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(Australian Family Physician, vol 29, No 1, jan 2000, 51-52)

Epidemic pleurodynia or Bornholm disease is well described in the literature. However, it may be a forgotten cause of pleuritic chest and abdominal pain. It is caused by infection with the coxsackie B virus, a member of the family of enteroviruses. This article describes seven cases that occurred during an epidemic of coxsackie B in Katherine, Northern Territory between December 1998 and June 1999. These illustrate the myriad ways this condition may present.

Diagnostic conundrums

Systemic illness

A 29 year old woman developed a severe headache, cough and pleuritic chest pain 3 days after the start of coryza and sore throat. On examination she had photophobia, neck stiffness and a rust coloured macular rash over the whole body but particularly the face and trunk. Chest auscultation was clear but there was a loud pansystolic murmur. She was in a fully orientated conscious state but was having difficulty speaking due to a severe sore throat. A provisional diagnosis of viral meningitis was made. A lumbar puncture revealed clear CSF and no white blood cells or organisms. A full blood count revealed a neutropenia and liver function tests were transiently abnormal with mildly elevated alanine aminotransferase (ALT) and gamma glutamyltransferase (GGT). Blood cultures and sputum cultures were negative (Table 1). A chest X-ray was normal. An echocardiogram revealed features of mild mitral regurgitation probably secondary to previous rheumatic heart disease. Viral serology showed immunoglobulin A (IgA) for coxsackie virus. All other viral serology was negative. She was managed by hospitalisation for 5 days, intravenous fluids and anti-inflammatories. Her pleuritic chest pain persisted for 6 weeks. At review 3 months later she was complaining of profound fatigue and malaise; all other symptoms had resolved. She stated that her neighbour had developed a similar though less severe illness around the same time.

Flu-like illness

A 31 year old man presented with flu-like symptoms for 1 week and complained of right-sided upper abdominal pain and pleuritic chest pain. His wife had a similar illness the week before. Examination revealed right upper quadrant tenderness. A chest X-ray was normal. Paired sera for coxsackie B were positive for recent infection. He made an uncomplicated recovery without treatment.

Cardiac symptoms

A 45 year old woman with no significant past history presented with two episodes of palpitations, shortness of breath and chest tightness which occurred a few days apart in association with a mild flu-like illness. Examination revealed a pulse rate of 100 beats/min. Investigations revealed a slight neutropenia (WBC 4.5 x 10^9/L (NR 4.0-11.0); neutrophils 1.9 x 10^9/L (NR 2.0-7.5); lymphocytes 1.8 x 10^9/L (NR 2.0-7.5)), sinus tachycardia on ECG and paired sera were positive for coxsackie B infection. Subsequent cardiac stress test, Holter monitor and echocardiogram were normal.

Pelvic pain

A 22 year old woman was admitted to hospital with right sided pelvic pain and an initial diagnosis of pelvic inflammatory disease. Intravenous antibiotics were commenced. Over 24 hours the pain shifted to the right upper quadrant and became pleuritic in nature. Other than generalised abdominal tenderness there were no other physical signs. Vaginal and cervical swabs were negative and a chest X-ray was normal. Convalescent serology for coxsackie B was equivocal.

A young child with abdominal pain

A 14 month old boy was transferred from Katherine to Royal Darwin Hospital with fever and episodic abdominal pain characterised by screaming, abdominal distension and drawing up of his knees. Intussusception was initially suspected. Symptoms settled over 48 hours and the child made a full recovery. All tests were normal apart from an equivocal IgA for coxsackie B virus.

Right upper quadrant pain

A 22 year old previously fit woman presented with severe right upper quadrant pain. The pain was persistent rather than colicky and had been preceded by a few days of loss of appetite and light-headedness. On examination she was doubled over in pain but findings were otherwise unremarkable. Gallstones were suspected but an upper abdominal ultrasound was normal. Within 4 days she was symptom free after treatment with anti-inflammatories. Paired sera for coxsackie B were positive for recent infection.

Pleuritic chest pain

A 45 year old woman with a past history of asthma presented with pleuritic chest pain and shortness of breath. Examination was unremarkable and chest X-ray normal. An initial diagnosis of hyperventilation had been made elsewhere. Serology for coxsackie B IgA was positive for recent infection. She recovered completely in 5 days with no treatment.

Discussion

Coxsackie B virus infection is seen more frequently in young adults and children and is rare in those over 60. It is transmitted by hand to mouth contact and frequently occurs in epidemics. Many infections are asymptomatic or cause a mild febrile illness with pharyngitis and nausea. However, the clinical syndromes it may produce include pleurodynia, myalgia, myocarditis, orchitis and meningitis. Bornholm disease is the name given to the pleurodynia caused by the virus. It was coined after a classic description of an early epidemic on the Danish island of the same name. The pain is pleuritic in nature, often of sudden onset and it may change its position. Young children will often be tachypnoeic with splinted diaphragms (shallow respirations because of pleuritic pain from diaphragm). Diaphragmatic involvement may produce abdominal pain and even mimic an acute abdomen. It is an important differential diagnosis to consider in patients presenting with chest pain and often misleads clinicians as is illustrated in the cases above. It should also be considered when patients present with meningism. Diagnosis is made from serology (IgA being most specific) - preferably acute and convalescent sets but the virus can also be isolated from stools. The condition is self-limiting (usually inside 1 week) but there are important, though rare, longer term sequelae particularly pericarditis and myocarditis. It has also been implicated as a possible cause of chronic fatigue syndrome and as a trigger for type 1 diabetes mellitus.