changes can occur in the form of osteosarcoma, fibrosarcoma, lymphosarcoma and reticulum cell sarcoma, but osteosarcoma is the most common.¹⁻³ The prognosis in such cases is very bad with high mortality. Osteoarthritis of neighbouring joints occurs as a result of old age and abnormal mechanical stresses over the joint because of bent and deformed bones.

Progress

A bone scan was done and the findings were consistent with a diagnosis of Paget's disease in the right femur. It also revealed small areas of activity in the skull and pelvis. There was no

evidence of pathological fracture, sarcomatous degeneration, or metastasis from prostate. It was concluded that pain was due to an increase in activity of the Pagetic lesion in the femur. The patient was put on bed rest and analgesics to which he responded and he went home walking.

Final diagnosis

Polyostotic Paget's disease of bone.

Keywords: prostate carcinoma; femur; Paget's disease; sarcomatous degeneration; sclerosis

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Stroke in a young woman

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A 12-year-old girl from rural Varanasi was stung by a scorpion (*Palamnaes swannerdani*, India) on her right index finger. She developed intense local pain and swelling over the site, followed by unconsciousness and right-sided hemiparesis, without seizures, in one hour. There was no history of substance abuse or administration of sympathomimetic agents. On examination, 48 h after the sting, consciousness had improved but patient had right-sided hemiparesis, right supranuclear 7th nerve paresis with expressive aphasia. Examination of fundus and other systems was normal.

Total and differential leucocyte count, platelet count, haemoglobin, packed cell volume, erythrocyte sedimentation rate, bleeding time, coagulation profile, blood urea and sugar, urinalysis, chest X-ray, postero-anterior view, and electrocardiogram (ECG) on the day of admission were within normal limits. Her cranial computed tomography (CT) scan is shown in the figure. Carotid angiogram did not reveal any abnormality. Hemiparesis and aphasia improved during a follow-up period of two months.

Figure CT scan

Questions

- 1 What is the diagnosis?
- 2 What are the probable causes?

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Answers

QUESTION 1

This is a case of stroke in a young girl due to left intracerebral haemorrhage in the basal ganglion region of the middle cerebral artery territory, with perifocal oedema compressing the frontal horn of the ipsilateral ventricle (figure).

QUESTION 2

Non-traumatic, non-neoplastic intracerebral haemorrhage in the young is usually due to arteriovenous (AV) malformation,¹ especially in females. However, basal ganglionic intracerebral haemorrhages are less commonly due to AV malformation rupture; these are usually associated with hypertension and occur at a later age.

Cavernous angiomas are usually found in the subcortical portion of cerebral hemispheres and in the pons. Cerebral amyloid angiopathy is usually found in elderly patients, is rarely seen below 55 years of age, and intracerebral haemorrhage has a superficial location in lobar cortex and leptomeninges.

Granulomatous angiitis of the central nervous system and other vasculitides usually cause infarction; bleeding is rare, although small aneurysm formation is seen. It is characterised angiographically by arterial beading. Polyarteritis is most likely to cause intracerebral haemorrhage in this group but systemic involvement is evident. Haemorrhagic transformation of cerebral infarct and haemorrhagic cerebral venous infarcts have characteristic CT findings and clinical setting.

Scorpion sting has been associated with cerebrovascular accidents in the past.² In most of these cases, neither CT nor magnetic resonance imaging (MRI) were carried out. In another case from our region,³ an intracerebral haemorrhage was documented by CT in association with scorpion sting (*Palamnaes swannerdani*). A normal carotid angiogram in our case supports the association, although it cannot rule out small AV malformation. MRI would have been preferable but was unavailable.

Discussion

Out of 1000 species of scorpion, only 30 are lethally toxic. These account for 5000 deaths per annum world-wide. The features of scorpion sting vary with the species but stroke is not commonly encountered (box 2). The transient cholinergic effects are followed by prolonged adrenergic manifestations.

In scorpion sting, the cause of intracerebral haemorrhage is not known; scorpion venom

Causes of intracerebral haemorrhage in the young

- vascular malformation: saccular or mycotic aneurysms, AV malformations, cavernous angiomas
- intracranial tumours
- trauma
- bleeding disorders, anticoagulant and fibrinolytic treatment
- cerebral amyloid angiopathy
- haemorrhagic infarct
- sympathomimetic agents

Box 1

Common features of scorpion sting

- local: swelling, pain, discolouration, local paraesthesia
- cardiovascular: hypertension, peripheral vascular collapse, myocarditis, congestive heart failure or pulmonary oedema, ECG changes of early myocardial infarction
- neurological: hyperexcitability of skeletal muscles, profuse salivation, priapism in males, dysfunction of cranial nerves, nausea, vomiting, respiratory muscle paralysis, agitation, confusion, convulsions

Box 2

has been shown to cause disseminated intravascular coagulation,⁴ but our patient had no features of it. Transient rapid rise of blood pressure and adrenal, subendocardial and intramuscular haemorrhage is well documented.⁵ The cardiovascular responses in scorpion sting closely resemble those of catecholamine overdose.⁶

In intracerebral haemorrhage associated with sympathomimetic agents such as amphetamine, ephedrine or cocaine, transient hypertension has been observed in 50% of cases; most of these patients were less than 40 years old, female, without any preceding illness and with first time ingestion, usually at recommended doses.

The sting of the scorpion, by its sympathomimetic effect, may have caused transient hypertension leading to intracerebral haemorrhage.

Final diagnosis

Haemorrhagic stroke due to a scorpion sting.

Keywords: intracerebral haemorrhage; scorpion sting

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