Neck pain disguised as spondyloarthrosis

Q1: What is the differential diagnosis?
Spondyloarthrosis is the most common condition presenting as neck pain, although it usually appears as an incidental finding in older, asymptomatic subjects in cervical radiographs. In fact, myelopathy develops in only 5%–10% of the symptomatic patients, although spondylosis is the most frequent cause of medullary disease in subjects older than 50 years. Osteophyte formation enhances stability between adjacent vertebral bodies in the elderly, increasing mobility of intervertebral junctions due to aged discs and the decreased ability of vertebral body endplates to bear weight trigger spur formation. If osteophytes project laterally or posterolaterally, the patient might eventually develop compression of the neural foramen and the spinal canal.

In our case, the initial suspicion of spondyloarthrosis was confirmed by regular radiography. The patient was on no medication other than non-steroidal anti-inflammatory drugs and there was no medullary exposure to radiation. No previous trauma was reported, and radiography ruled out the possibility of fractures or subluxation. Nevertheless, over a one year period, new clinical data pointed towards other entities as potential diagnostic options.

Chronic epidural abscess may progress insidiously, mimicking an extrinsic spinal cord neoplasm. This entity could not be ruled out by a normal erythrocyte sedimentation rate (ESR) and the absence of fever, because both might be missing in chronic processes or immunosuppressed subjects. Therefore neuroimaging is indicated to discount epidural pathologies, particularly if there is a history of diabetes, back trauma, or immunosuppression.

Spinal tuberculosis could also progress slowly and the patient have a normal ESR; MRI ruled out this diagnosis in our case.

Metabolic diseases, such as diabetes mellitus or Paget’s disease, were ruled out by the normal results reported for blood tests and radiography.

Demyelinating diseases like multiple sclerosis would not explain the exploratory findings. There were no symptoms such as concomitant focal deficits, transverse myelitis, or optic nerve disease that could suggest demyelination. Neither amyotrophy nor fasciculations were observed, thus a diagnosis of lateral myelopathic sclerosis could be reasonably discarded.

The appearance of left C5 irradiated pain, and the association of increasing weakness of the ipsilateral upper limb suggested root compression. The addition of spasticity, urge incontinence, and ultimately tetraparesis indicated spinal compression. The rapid worsening of the former symptoms (months instead of years) suggested a non-spondyloctic cause, and thus raised the possibility of neoplastic involvement.

Neuroimaging should be used if there are con genital problems and any conditions involving degenerative skeletal or spinal structures (besides cancer) that can be dismissed by regular neck radiography. MRI allows the examination of spinal cord, nerve roots, subarachnoid space, soft tissue anomas, and is also preferred for the study of intradural or extradural neoplastic growths.

Medullary vascular malformations such as strawberry angiomas or arteriovenous fistulas are other rare known causes of medullary compression. Chronic manifestations producing a mass effect may also be considered in differential diagnosis. Box 1 shows the different entities responsible for cervical myelopathy and radiculopathy.

Q2: What is the diagnosis?
Extramedullary schwannoma accounts for 30% of primary spinal tumours, and also for most clinical pictures involving extramedullary compression. Cervical and lumbar sites have been mentioned as the most frequent locations. As seen in our case, root pain usually appears as the presenting symptom.

There are two pathological variants, interwoven bundles of long spindle shaped Schwann cells (Antoni A type), often intermingled with areas of more polymorphic Schwann cells embedded in a loose eosinophilic matrix (Antoni B).

Box 1: Differential diagnosis of cervical myelopathy and radiculopathy

Degenerative

- Spinal or skeletal: discogenic disease, spondylosis or soft disc, ligamentum flavum hypertrophy, ossification of the posterior longitudinal ligament, frozen shoulder, facet arthropathy, shoulder impingement syndrome.
- Neurological: amyotrophic lateral sclerosis.

Neoplastic

- Intradural

  - Intramedullary: glioma, haemangioblastoma, metastatic.
  - Extradural: schwannoma, neurofibroma, meningioma.

- Extravectorial: schwannoma, neurofibroma.
  - Brachial plexus: Pancoast’s tumour, schwannoma, neurofibroma.

Traumatic

- Fractures, subluxation, root avulsion, stretch injury.

Inflammatory

- Vasculitis, anklyosing spondylitis, polyarthritis, polymyalgia rheumatica, rheumatoid arthritis.

Demyelinating

- Multiple sclerosis.

Infectious

- Epideral abscess, vertebral osteomyelitis, Pott’s disease, discitis, vertebral osteomyelitis, herpes zoster.

Metabolic

- Diabetes, Paget’s disease, porphyria, pernicious anaemia.

Vascular malformations

- Arteriovenous malformations, dural arteriovenous fistulas, carotid-cavernous angiomas, capillary telangiectasias.

Congenital

- Syringomyelia, os odontoideum, Arnold-Chiari malformation, platybasia, tethered cord syndrome.

Q3: If compression of medullary structures is found, would it be of intramedullary or extramedullary nature?
Clinical presentation of medullary involvement seems to correlate with intramedullary or extramedullary component. Whereas radicular pain has mostly been associated with early extramedullary compressions, the concurrence of initial first and second motor neurone lesions evokes intramedullary involvement. Physical examination confirmed the former possibility in our patient when a decrement of the left Bicipital reflex, that located the deficit at a C4–5 site, was detected. Later on, lower limb spasticity appeared as spinal compression progressed. Further development of the clinical picture showed urgency of micturition, and a progressive pararesthesia with sensitive involvement supported our initial findings.

MRI study shows an extramedullary mass with uniform signal of 2 × 0.8 × 1 cm at posterior and lateral left sites at C4 level (fig 2; see p 119). The medullar bone intensity right over the expansive process is altered, and the spine duct shows deformity, and there is oedema. The tumour showed an enhanced signal intensity when endovenous gadolinium contrast was administered. Degenerative changes at C3–C5 level increase duct stenosis. Radiological differential diagnosis of extramedullary contrast enhancing lesions was made and extramedullary haemangioblastomas, ependymomas, metastasis, and other possibilities were discounted. The extramedullary neo- mesial growth was explained by the pathological evidence of schwannoma.

Q4: What is the treatment and prognosis of this condition?
Surgery should be performed in cases of this nature. The degree of severity before removal correlates with the outcome. Prognosis also depends on the possibility of total resection of the mass. If the latter is possible, complete relief or at least stabilisation of symptoms will occur. However, incomplete tumour resection might be acceptable if surgery jeopardised key neural structures.

Our patient underwent laminectomy at the C3–C4 level, and complete tumourectomy was performed. The postoperative course showed a remarkable improvement in the patient’s motor abilities and sensitivity, and he is still improving his functional performance through rehabilitation.

Schwannomas are benign neoplasms and are typically encapsulated with slow local progression and root or medullary compression. Although some patients show some degree of paresis after surgery, their life expectancy equals that of the general population.

Conclusion
Pain might be a misleading symptom. In fact, neck pain usually relates to cervical spondyloarthrosis in the elderly, although some ominous clinical entities might progress “in disguise” and thus, remain unrecognised. Therefore, all subjects presenting with cervical or irradiated pain (to the chest, back, or abdomen) should undergo an intramedullary examination in order to discount root or medullary compression, even if more frequent conditions (that is, spondyloarthrosis, myocar dial infarction, pancreatitis) are suspected.

Final diagnosis
Extramedullary schwannoma.
Self assessment answers 123

References

Learning points
• Severe sulphonylurea-induced hypoglycaemia is a medical emergency.
• The clinical presentation may be atypical requiring a high index of suspicion.
• Relapse after a satisfactory response to intravenous insulin therapy is well recognised.
• Octreotide can reduce the relapse rate by inhibiting insulin secretion.
• Treatment with glucose and octreotide may be required for several days.
• Diazoxide may be used to reduce insulin secretion but should be used cautiously particularly in the elderly.

Severe relapsing sulphonylurea-induced hypoglycaemia: a diagnostic and therapeutic challenge
Q1: Describe the factors that increase the risks of sulphonylurea hypoglycaemia.

Proposing factors for severe sulphonylurea-induced hypoglycaemia include advanced age, use of long acting agents such as glipizide and chlorpropamide, cardiac restriction, sustained physical exercise, acute systemic illnesses, alcohol, and renal, hepatic, and cardiovascular disease.1 In the elderly even shorter acting agents such as gliclazide can cause hypoglycaemia, especially if renal or hepatic dysfunction is present. About 60%–70% of a dose of glipizide is excreted in the urine, with the rate of excretion being slowed when creatinine clearance decreases below 20 mL/min. The British National Formulary recommends glipizide dose reduction in renal failure.2 Polypharmacy can increase the risk either by direct pharmacokinetic interaction (for example, inhibition of sulphonylurea metabolism by drugs such as fluconazole) or by effects on appetite, food intake, and metabolism by drugs such as fluconazole (for example, inhibition of sulphonylurea-sensitised β-cells). Metformin may augment hypoglycaemia if co-prescribed with sulphonylurea or other insulin secretagogues. Prescription errors in non-diabetic subjects and deliberate overdose may occur.3 Finally, glipizide has been found in unorthodox medications. A combination of factors probably produced hypoglycaemia in our patient notably reduced food intake during the surgical admission, good recent glycaemic control as judged by her glycated haemoglobin and a degree of renal impairment.

Q2: What was the reason for this patient’s prolonged hypoglycaemia?

Sulphonylureas bind to receptors on islet β-cells leading to insulin release. Fast-acting hypoglycaemia results if hyperinsulinaemia suppresses endogenous (predominantly hepatic) glucose production. Intravenous hyperglycemic glucose (20–50 ml 50% glucose via a large vein) will rapidly correct hypoglycaemia but then acts as a potent secretagogue to the sulphonylurea-sensitised β-cells. Insulin secretion is stimulated and hypoglycaemia recurs. For this reason, it is unsafe to discharge patients with sulphonylurea-induced hypoglycaemia after a satisfactory response to intravenous insulin therapy. Intravenous glucose may be required for several days. The blood glucose concentration should be maintained around 5–7 mmol/l as this is sufficient to prevent neuroglycopenia, while avoiding maximal insulin secretion. By monitoring the serum potassium concentration the risk of hypokalaemia (from insulin and glucose) is reduced. Glucagon should be avoided as it causes hypoglycaemia if co-prescribed with sulphonylureas.

Q3: What pharmacological agents are available to treat an episode of postprandial hypoglycaemia in this situation?

Suppression of insulin secretion is a logical adjunct to intravenous glucose therapy in sulphonylurea-induced hypoglycaemia. Diazoxide inhibits insulin release,3 but hypoglycaemia and relapse may occur. Insulin controlled studies in healthy volunteers have confirmed that octreotide effectively suppresses glucose-stimulated insulin secretion by sulphonylurea-sensitised β-cells.4 Several reports have also confirmed a clinical (but unlicensed) role for octreotide in patients with severe refractory sulphonylurea-induced hypoglycaemia.5,6 It should be administered subcutaneously in an initial dose of 50 µg three times a day and may be required for several days, especially for long acting or sustained release sulphonylurea preparations. Adverse effects include dose related transient abdominal pain and steatorrhoea.7

References

“Question mark” aorta

Q1: What is the most likely diagnosis and how do you confirm your suspicion?

The clinical and radiological picture for this case is compatible with syphilis of the cardiovascular system, characterised by late manifestation as thoracic aortic aneurysm. A history of primary syphilitic infection helps in making the diagnosis. Routine serological tests for syphilis are helpful in confirming the history of spirochaetal infection. Even the venereal disease reference laboratory test might have become negative in this treated case; tests like Treponema pallidum immobilisation evaluation or fluorescent treponemal antibodies absorbed are highly likely positive. As the radiological appearance itself is characteristic,1 together with a definitive history, serological tests in this particular case would be of secondary use only. Precise definition of the aneurysm, on the other hand, can be achieved by echocardiography, imaging studies such as computed tomography or magnetic resonance imaging, and arteriography, if indicated.

Q2: What are the other manifestations of this condition in the same system?

Sphilitic aortitis, or syphilitic aneurysm of the cardiovascular sysyhm, may present in four ways.8
1 Asymptomatic aortitis is the most prevalent form and may be unrecognised until necropsy.
2 Aortic regurgitation or insufficiency occurs as a result of aortic dilatation.
3 Coronary ostial stenosis occurs in up to 30% of cardiovascular syphils and frequently coexists with the aforementioned aortic regurgitation. Curiously, despite the frequent manifestation of angina in this condition, clinically apparent myocardial infarction is rare for uncertain reasons.
4 Aortic aneurysm—usually solitary and sacular, occasionally fusiform—is the least common manifestation.

Q3: What are the principles of management in this condition?

Management in this case is largely dictated by symptoms. Surgical resection might not be indicated if there is no evidence of expanding aneurysm or chest pain. Adjunct intravenous diazoxide treatment, on the whole, is indicated if syphilitic disease is active or progressive. None the less, it is questionable whether it alters or

www.postgradmedj.com

Downloaded from http://pmj.bmj.com/ on September 21, 2017 - Published by group.bmj.com

Management of syphilitic cardiovascular disease should have begun at the stage of primary and secondary syphilis. It should be remembered that cardiovascular syphilis develops as a result of untreated and inadequately treated (the majority of cases nowadays) treponemal disease. Aortic aneurysm and aortic regurgitation, once developed, cannot be reversed by antibiotic treatment.

The laboratory proof of syphilis and subsequent computed tomographic evidence of fusiform aneurysm in this patient did support the diagnosis of syphilitic aortitis. We believe that it had been present in this woman three years previously, before penicillin was given. The clinician might have missed the diagnosis of aortitis at that time. It remains speculative whether Jarisch-Herxheimer reaction after treatment made the aneurysm worse. Alternatively, the aortic disease progressed and therefore became more obvious by the time this radiograph was taken this time.

Discussion

“Know syphilis in all its manifestations and relations, and all other things clinical will be added into you” (Sir William Osler, 1891).

The protean multisystem manifestation of this “great imitator disease” was well captured by the above teaching of scholar Osler.

The basic lesion in the tertiary form of cardiovascular syphilis is thought to be that of endarteritis obliterans. Morphological features had been well documented in a necropsy study of 100 such cases. Microscopically, all cases showed invariable predilection for the vasa vasorum (of the aorta), which is characterised by medial necrosis. Destruction of the important elastic tissue of media then causes swelling and scarring of the intima, which sets the stage for subsequent aortic dilatation and aneurysm formation. The classical macroscopic appearance of “crow’s foot” or “tree bark” marking seen at necropsy reflects the extensive plaque formation along the entire intimal surface of the affected aorta.

Symptoms of cardiovascular syphilis typically appear from 10 to 40 years after infection. Routine chest radiography was found to have a sensitivity of 75% in diagnosing late untreated syphilitic aortitis among 75 patients who underwent postmortem examination. Radiographic features, accompanied by clinical context, give the answer to this diagnosis. Most notable among these are dense shadow, widening, and calcification of the aortic arch and linear calcium deposits (“eggshell” calcification outlining the aneurysm) in ascending aorta.

In the preantibiotic era, these cardiac complications were commonly encountered with late untreated syphilis. In the 1990s, reported cases of infectious syphilis had declined substantially. On the other hand, there has been an apparent rising incidence of syphilis infection noted worldwide from surveillance data at the start of the 21st century. It remains to be seen if the late manifestations of cardiovascular syphilis would outnumber the occurrence of rheumatic heart disease in the decades to come. Moreover, whether progression of this “great imitator” to tertiary cardiovascular syphilis would be accelerated as a consequence of HIV induced immunosuppression is of great interest.

Final diagnosis
Thoracic aortic aneurysm as the late manifestation of tertiary syphilis.

References