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 and increases the 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 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 immunesuppressed subjects. Therefore neuroimaging is indicated to discount epidural collections, particularly if there is a history of diabetes, back trauma, or immunesuppression.

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 sclerosis was discarded. The myelographic sclerosis could be reasonably discarded.

The appearance of left C5 irradiated pain, and the association of increasing weakness of the ipsilateral upper limbs led us to suspect root compression. The addition of spasticity, urge incontinence, and a progressive development of the clinical picture showed urge mictional incontinence, and ultimately tetraparesis, with sensitive involvement supported the former possibility in our patient when a trast was administered. Degenerative changes at C3–C5 level increase dural stenosis. Radiological differential diagnosis of extradural contrast enhancing lesions was made and arthromyelomas, meningiomas, metastasis, and other possibilities were ruled out. The extramedullary neo-plastic growth was explained by the pathological evidence of schwannoma.

Q2: What is the diagnosis?
Extradural schwannoma accounts for 20% of primary spinal tumours, and also for most clinical pictures involving extradural 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, inter- and intramedullary. Longitudinal stripings of Schwann cells (Antoni A type), often intermingled with areas of more polymorphic Schwann cells embedded in a loose oesinophilic matrix (Antoni B).

Box 1: Differential diagnosis of cervical myelopathy and radiculopathy

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

Neoplastic
- Intramedullary: glioma, haemangioblastoma, metastatic.
- Extramedullary: schwannoma, neurofibroma, meningioma, metastatic.
- Brachial plexus: Pancoast’s tumour, schwannoma, neurofibroma.

Traumatic
- Fractures, subluxation, root avulsion, stretch injury.

Inflammatory
- Vasculitis, ankylosing spondylitis, polyarthritis, polymyalgia rheumatica, rheumatoid arthritis.

Demyelinating
- Multiple sclerosis.

Infectious
- Epidural 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 fistula, 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 extradural or extramedullary nature?
Clinical presentation of medullary involvement seems to correlate with extradural or extramedullary component. Whereas radicular pain has mostly been associated with early extradural compressions, the concurrence of initial first and second motor neuron 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 urinary mictional incontinence, and a progressive paraesis, with sensitive involvement supported our initial findings.

MRI study shows an extramedullary mass with uniform signal of 2 x 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, 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 dural stenosis. Radiological differential diagnosis of extradural contrast enhancing lesions was made and arthromyelomas, meningiomas, ependymomas, metastasis, and other possibilities were ruled out. The extramedullary neo-plastic 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 tumourresection might be acceptable if surgery jeopardised key neural structures.

Our patient underwent laminectomy at the C3–C4 level, and complete tumourresection 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 unrevealed. Therefore, all subjects presenting with cervical or irradiated pain (to the chest, back, or abdomen) should have an incomplete neurological examination in order to discount root or medullary compression, even if more frequent conditions (that is, spondyloarthrosis, myocardial infarction, pancreatitis) are suspected.

Final diagnosis
Extradural schwannoma.
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 glibenclamide 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 cause hypoglycaemia, especially if renal or hepatic dysfunction is present. About 60%–70% of a dose of glibizide 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 gliclazide dose reduction in renal failure. 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 absorption. Metformin may augment hypoglycaemia if co-prescribed with sulphonylurea or other insulin secretagogues. Prescription errors in non-diabetic subjects and deliberate overdose may occur. Finally, glibenclamide 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 and cardiovascular disease. Predisposing factors for severe sulphonylurea-induced hypoglycaemia may include hepatic or renal insufficiency, impaired awareness of hypoglycaemia, and consumption of alcohol in the preceding hours.2

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

Sulphonylureas bind to receptors on islet β-cells leading to insulin release. Fasting hypoglycaemia results if hyperinsulinaemia suppresses endogenous (predominantly hepatic) glucose production. Intravenous hyperglycaemic 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 unwise to discharge patients with sulphonylurea-induced hypoglycaemia after a satisfactory response to a glucose load. Even 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 neuroglycopaenia, while avoiding maximal insulin secretion. By monitoring the serum potassium concentration the risk of hypokalaemia (from insulin and glucose) is reduced. Glucagon should be required for several days, especially for long acting or sustained release sulphonylurea preparations. Adverse effects include dose related transient abdominal pain and steatorrhoea.

Q3: What pharmacological agents are available to treat 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 hypotension and relax tachycardia may preclude its use in elderly patients with coronary heart disease. The long acting somatostatin analogue octreotide has a potent inhibitory effect on 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 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.

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?

Syphilitic aortitis, the hallmark of cardiovascular syphilis, may present in four ways.1

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 syphilis 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 saccular, 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. At this stage of aortic aneurysm treatment, on the whole, is indicated if syphilitic disease is active or progressive. None the less, it is questionable whether it alters or
Cardiovascular syphilis is thought to be that of the above teaching of scholar Osler. 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 vasaorum (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 thoracic aortic aneurysms 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**