J. G. HILL AND F. J. BRUNTON: ARTERIOGRAPHIC ASSESSMENT OF PLACENTAL VASCULARITY

FIG. 1.—Normal placentogram. Good filling of placental sinuses. Note cervical marker.

FIG. 3.—Placenta from case illustrated in Fig. 2, showing numerous infarcts indicated by pale areas.

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FATAL SUBAXIAL DISLOCATION OF
CERVICAL SPINE

FIG. 2.—Abnormal placentogram. Very sparse sinus filling.

FIG. 1.—X-ray film showing forward subluxation of the body of the fourth on the fifth cervical vertebra (arrowed). The atlanto-axial joint is seen to be normal.

Medical Memoranda

Fatal Subaxial Dislocation of Cervical Spine in Rheumatoid Arthritis

[WITH SPECIAL PLATE FACING PAGE 28]

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Cervical spine involvement has long been recognized as a feature of juvenile rheumatoid arthritis (Still, 1896; Coss and Boots, 1946; Potter *et al.*, 1954; Ziff *et al.*, 1954). Though Garrod described cervical spine involvement in adult rheumatoid arthritis in 1890, it is only within relatively recent times that the frequency and importance of cervical spine changes in adult rheumatoid arthritis has been appreciated (Kellgren and Lawrence, 1956, 1958; Sharp, 1957; Sharp and Purser, 1957, 1961; Sharp *et al.*, 1958; Martel, 1961; Conlon *et al.*, 1966).

This paper describes the case of a patient with fatal subaxial subluxation of the cervical spine complicating rheumatoid arthritis.

CASE REPORT

The patient, a woman aged 62, had a 15-year history of rheumatoid arthritis, and for the past six years had been confined to a wheelchair. Various analgesic regimens had been used, but for the past nine years methylprednisolone 12 mg. daily had been prescribed.

Three months before admission she had an exacerbation of her arthritis which confined her to bed. During this time she had experienced paraesthesiae in her extremities and muscle spasms and progressive weakness in her legs. A month before admission she had difficulty in micturition, progressing to urinary incontinence.

On examination she was pyrexial, with an oral temperature of 37.5° C. There was slight mooning of the face and atrophy of the skin, but no other stigmata of corticosteroid overdosage. Bedsores were present over scapular and gluteal regions. She had severe generalized rheumatoid arthritis.

Neurological examination showed pronounced muscle-wasting in all limbs. Signs of an upper motor neurone lesion in her legs and a lower motor neurone lesion in her arms were found. There was complete sensory loss below C6, but no other neurological signs. She had an enlarged bladder and faecal impaction. Cardiovascular and respiratory systems were normal.

Laboratory investigations showed haemoglobin 11.5 g./100 ml., packed cell volume 36%, mean corpuscular haemoglobin concentration 31%, white cell count 12,400/cu. mm. with a polymorph leucocytosis, erythrocyte sedimentation rate 15 mm. in the first hour, and Rose-Waaler positive at a titre of 1:64. Urinalysis showed a trace of albumin, and pus cells on microscopy. Urine culture grew *Proteus mirabilis* 100,000 organisms per ml.

X-ray examination showed extensive erosions of the peripheral joints and generalized osteoporosis. Radiological examination of the cervical spine, in flexion and extension, together with tomography of the atlanto-axial joint, showed a normal atlanto-axial joint, apart from small erosions on the odontoid peg. However, there was forward displacement of the body of the fourth on the fifth cervical vertebra (Special Plate, Fig. 1), more pronounced during flexion, and resulting in narrowing of the spinal canal.

The urinary tract infection was treated with a course of ampicillin, and the patient was transferred to the orthopaedic department for cone traction. This caused recurrent episodes of cerebral ischaemia and had to be abandoned. Owing to her poor general

condition no attempt at internal fixation of the cervical spine was attempted. The bedsores enlarged despite all treatment, urinary infection was recurrent, and five months after admission she died of bronchopneumonia following an upper respiratory infection.

Permission for a post-mortem examination was not obtained.

COMMENT

Subaxial subluxation of the cervical spine is an infrequently recognized complication of rheumatoid arthritis involving the cervical spine. The most common site for this occurrence is between the fourth and fifth cervical vertebrae, where there is usually anterior dislocation (Sharp, 1964). In the present case this was the site of dislocation.

Though atlanto-axial dislocation is more common than subaxial dislocation, it is less frequently associated with neurological complications (Cregan, 1966). Moreover, as Cregan has pointed out, in atlanto-axial subluxation pain is usually more prominent than are neurological symptoms, whereas with subluxation occurring at a lower level pain and clinical neurological involvement are seen with equal frequency. Compression of the spinal cord may on occasion result from rheumatoid granulation tissue rather than the narrowing of the spinal canal produced directly as a result of subluxation (Hopkins, 1967).

Fixation of the cervical vertebrae by wiring, plating, or bone graft and decompression if carried out promptly can result in pronounced clinical improvement in the neurological complications, and can prevent a fatal outcome (Cregan, 1966). Skull traction is less satisfactory (Hopkins, 1967), and in our patient recurrent attacks of cerebral ischaemia occurred during this procedure.

When subaxial subluxation is suspected in rheumatoid arthritis the neck should be immobilized in a cervical collar and surgical advice promptly sought.

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