

Cervical Root Compression Due To Vertebral Artery Loop

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Abstract: A 62 year old man was admitted to hospital with the complaints of paraesthesia and aching in the lateral right arm. Neurological and radiological examination revealed cervical root compression due to vertebral artery loop. This is of interest since such a vascular anomaly is not mentioned in the literature and

should be considered by physicians when making a differential diagnosis for spinal compression.

Key Words: Cervical spine, root compression, vascular anomaly, vertebral artery

INTRODUCTION

Although anomalies of the vertebral artery are frequent, most cases are seen at the origin of the artery and the entrance segments of the cranium, known as duplication and fenestration (1-5).

CASE

A 62-year-old patient was admitted with complaints of right arm lateral hyperaesthesia and aching. At neurological examination hyperaesthesia of C4-5-6-7 was found. Motor neurological examination and deep tendon reflexes were normal. In routine four-plane cervical radiograms the foramen of C3-4 extended to the opposite side. There was no bone destruction and other osseous structures were also normal. On myelo-computer tomography axial slices showed an extraspinal mass of soft tissue density compressing the root which was filling the C3*4 foramen (Fig 1). Intravenous contrast material was not given and because of claustrophobia Magnetic Resonance Imaging was not done. Electroneuromyographic examination was also normal. In the M.levatorscapulae and trapezius there was a reduced number of motor units and high amplitude

motor unit action potential suggesting C3-4 root lesion. For further pathological knowledge before considering an operation an aortogram was done to evaluate neighbouring structures and obtain more information about the vascularity of this mass with transfemoral arterial interference. Entering of domi-

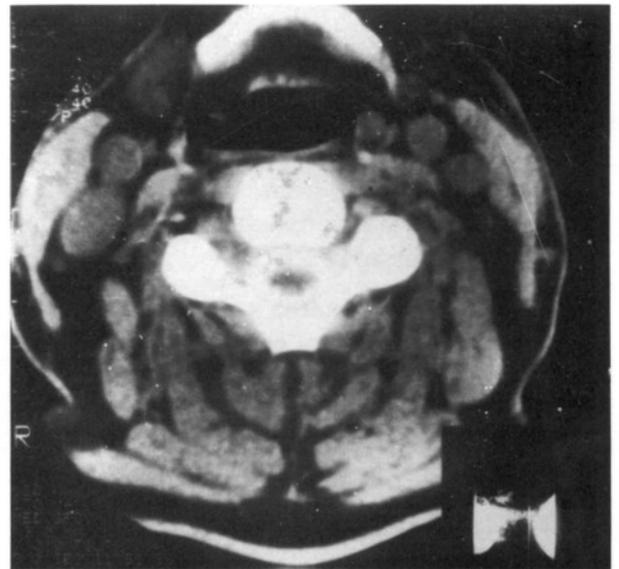


Fig. 1 : Extraspinal mass compressing the root which is filling the C3-4 foramen on computerized tomography.

nant right vertebral artery at C3 level in the foramen and compression of the artery on the root were the cause of the symptoms (Fig 2). Besides activation of the smooth tissue wave in the previous examination, the results of the two methods showed correlation.



Fig. 2 : Vertebral artery loop at the C3 level compressing the root on the aortogram.

DISCUSSION

The course of the vertebral artery is relatively regular, except for a few minor variations (5). Between its origin at the subclavian artery to the junction with the opposite vertebral artery, the vessel is divided into four segments.

1 - Segment between the subclavian artery and the foramen transversum of C6,

2 - Segment within the foramina transversia of C6 to C2,

3 - Tortuous segment between the transverse processes of C2 and C1,

4 - Segment between C1 and the junction with the opposite vertebral artery.

In about 90% of anatomical series, the vertebral artery enters the foramen transversum of C6 but rarely the foramina of C4, C5 or C7. Different entry of the artery on either side in an individual occurs mostly in one segment. These variations are regarded as developmental anomalies and are often associated with impaired separation of the ectoderm and endoderm and impaired recombination of the embryonic sclerotoma prior to development of the vertebral artery (1-5).

While Iyeer et al (4) investigated anomalies in the origin of the vertebral artery, Tokuda et al (6) reported anomalies in the atlanto-axial part of the vertebral artery. Though these two studies found extracranial artery anomalies, they do not report any anomaly in intraforaminal progression. Hasagawa et al (2,3) in their studies in 1983 and 1984, Cadvar et al (1) and Rieger et al (7) also reported duplication which is a common developmental anomaly of the vertebral artery. Though the mentioned methods have mainly foraminal pathology, the necessity of the angiography comes out once more. MRI and 3DFT-MR angio seems superior to all the mentioned imaging modalities.

No cervical root compression due to vertebral artery loop has been reported in the literature, but clinicians should consider vertebral artery loop as the reason for extradural root compression

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