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Opto-Chiasmatic Arachnoiditis: A Review of Traditional
Neuroradiological Diagnosis (82 Cases, 1951-1976)

By

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With 13 Figures

Summary

A retrospective appraisal of traditional neuroradiological techniques (such
as direct röntgenograms, cerebral angiography RISA-cisternography, and pneumo-
cisterno-encephalography, as opposed to the “new” technique of computer-assisted
tomography) was carried out in a series of 82 cases of opto-chiasmatic arachnoiditis,
all surgically verified. It is concluded that none of these examinations can provide
a reliable diagnosis of opto-chiasmatic arachnoiditis, which preoperatively can only
be a tentative diagnosis that becomes final only when confirmed by surgical
findings. In the presence of certain progressive neuro-ophthalmological symptoms
and signs, a negative neuro-radiological investigation should not deter the neuro-
surgeon from exploring the chiasmatic region. Computer-assisted tomography,
of which the authors have no personal experience in these cases, may hold the
future answer to the diagnostic problem.

Keywords: Arachnoiditis; cerebral angiography; optic chiasma; optic nerve;
pneumoencephalography.

Introduction

Opto-chiasmatic arachnoiditis (OCA) is nowadays a controversial
entity, more readily accepted by neurosurgeons than by ophthalmolo-
gists. The possibility that the anterior optic pathways could suffer,
with ensuing serious visual impairment, from compression by arachnoid adhesions (the consequence of either an optic retrobulbar neuritis or of an inflammatory process in separate but neighbouring anatomical structures) was first suggested in 1929 by Balado and
Satanowski 1, by Cushing 12, and by Holmes 27. In the following years the concept gained wide acceptance, and the disease became known in the United States as "cisternal arachnoiditis", in South America as "Balado's syndrome", and in Europe as "opto-chiasmatic arachnoiditis", a term coined by Vincent 70. Hartmann 26, in 1945, wrote an exhaustive review of OCA. Two years later Feld and Auvert 19 reviewed the entire series of 148 patients operated on by Vincent and by his collaborators and, on the basis of the long term results, came to the conclusion that most operations had been performed after the wrong diagnosis and indication (the real disease being mostly retrobulbar optic neuritis) and that the long term functional results of surgery had therefore been unfavourable in most cases.

After this "turning point" the condition seems to have met with increasing scepticism. In the United States, where it was first described, and in England, cases of OCA seem to be so infrequent as to merit isolated case reports 9, 11, 23, 25, 40, 64. Walker 72 did not include OCA in the differential diagnosis of the chiasmal syndrome. In the early edition of his treatise on neuro-ophthalmology 73, Walsh professed himself resistant to the concept of "primary" OCA. Such an opinion was however tempered in the last edition of his book 74, where the possibility of a certain geographical difference in the number of such observations is admitted 14.

In fact, while the condition appears to be now very uncommon, if not absent altogether, in certain countries and hospital centers it is still observed and operated notably in Central and Eastern Europe 5, 6, 10, 17, 21, 24, 28, 29, 41, 42, 44, 46-48, 51, 52, 54, 55, 61-63, 66-69 and in Japan 30, 31, 49, 50, 65.

Clinical Material

Since the inception of this Neurosurgical Service (1951), it has been possible to verify at operation 82 cases of OCA. This series, after some preliminary reports 32-33, 38, 39 of cases presenting certain peculiar characteristics, was presented at the 5th International Congress on Neurogenetics and Neuro-ophthalmology 37, where we analyzed the aetiological, clinical, diagnostic, and therapeutic problems of the disease.

We readily admit, with other authors 52, that the frequency of OCA seems to be on a decline, thanks to the improved treatment with antibiotics, steroids, and anti-inflammatory agents of retrobulbar neuritis and of those inflammatory conditions of the cephalic extremity, which have been considered relevant to the aetiology and pathogenesis of OCA. Since the end of 1976 we have not observed a