“A” AND “V” PHENOMENA

These phenomena are usually thought to occur where there is a relative vertical muscle weakness in a predominantly horizontal strabismus. Some authors consider abnormal horizontal rectus muscle action to be the cause, while others consider it to be a combined abnormality of action of the horizontal and vertical muscles. A bilateral symmetrical weakness is usually present and may be seen in association with a latent or a manifest deviation. In some cases the condition may be due to an abnormal muscle insertion rather than to a paresis.

As the eyes normally converge on depression for close work, there is a natural tendency for the “V” phenomenon to occur as a physiological finding. The “A” and “V” phenomena are said to be present if there is a difference of greater than approximately 10^{Δ} between the angle of deviation in elevation and depression (12^{Δ} exodeviation, 10^{Δ} esodeviation). The measurements are made by the prism bar cover test or on the synoptophore and should be taken at least 20° above and below the primary position.

“A” Phenomenon

A

This appears as a relative convergence in elevation and a relative divergence in depression, as compared with the ocular deviation in the primary position.

The “A” phenomenon with a convergent deviation is usually due to a relative weakness of the inferior oblique muscles. On elevation there is a relative underaction of the affected inferior oblique muscles and hence some of their abducting power is lost. There is an increased convergent deviation from this weakness, increased possibly by the uninhibited secondary adducting power of the superior recti. In Fig. 1 the “A” phenomenon occurred secondary to a bilateral superior oblique sheath syndrome which gave a relative inferior oblique paresis.

FIG. 1.—A, Bilateral superior oblique sheath syndrome seen as convergent “A” phenomenon with apparent inferior oblique palsies. B, Pictorial presentation and confirmatory Hess chart.

B

"A" AND "V" PHENOMENA

"A" Phenomenon

The "A" phenomenon with a divergent deviation is due mainly to a relative under-action of the inferior rectus muscles. On depression of the eyes there is weakness of the secondary adducting power of the inferior recti muscles giving a relative increase of divergence. This is also probably enhanced by the now uninhibited secondary abducting action of the superior oblique muscles in depression (Fig. 2).

A

FIG. 2.—A, Divergent deviation with "A" phenomenon showing increased divergence on depression. B, Representation of phenomenon on Hess chart.

B

To be continued.

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