Ultrasonic Diagnostics in Ophthalmology

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Ultrasonic diagnostics were first applied to ophthalmology in 1956 by Mundt and Hughes [Amer. J. Ophthal. 42: 488–498, 1956]. In the last five years, the method has been introduced in a number of hospitals. The technique has been improved from the simple A-scan method to the more advanced B-scan method. The A scan yields a one-dimensional picture of the eyeball and orbit, while the B scan produces a quite detailed two-dimensional section. A B-scan apparatus has been developed at the Physics Laboratory of the Ophthalmological Department in Nijmegen, in collaboration with the Instrumental Service and the Medical Physics Department. Some results obtained with this apparatus are demonstrated.

Discussion

Kiewiet de Jonge: Is the ultrasonic method a good method of differentiating between solid tumours and tumours which are filled with fluid, such as haemangioma and cysts?

Thijssen (in reply): Haemangioma and solid tumours cannot be differentiated; both produce a large number of echoes close together. These are caused by the irregular, i.e., non-homogeneous, structure of the tissue. Cysts are filled with a homogeneous substance, which produces no reflections; thus, the B-scan photograph only shows the outline of a cyst. According to Ossoinig [Graefes Archiv Ophthal. 172: 364–382, 1967], a cyst can be distinguished from a solid tumour in 97% of cases.

Van Bochove: In the B-scan photographs demonstrated, a tumour was diagnosed behind the lens. Could this not have been seen with the ophthalmoscope (thus localization)?

Thussen

tion by means of light)? I cannot recall if you told us that this eye could not be examined ophthalmoscopically. Ophthalmoscopy must not be brought into disrepute by this rather complicated B-scan technique.

Thussen: The B-scan photographs were only intended to illustrate the method. The apparatus was principally used to gain insight into the diagnostic possibilities; the diagnosis had already been made by other methods. In the case under discussion

the tumour had been localized by ophthalmoscopy. Ultrasonic diagnosis is generally speaking

more precise and

naturally

has possibilities in the presence of corneal

lens and vitreous opacities and in the diagnosis of orbital conditions.