Status of Vision Following Surgical Treatment for Pituitary Chromophobe Adenoma

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The purpose of this paper is to evaluate the effect of surgical treatment alone on the impairment of visual fields produced by pituitary chromophobe adenoma.

Materials and Methods

We reviewed all of the cases of pituitary chromophobe adenoma treated only surgically during the period January 1950 through December 1958. Cases in which circumstances interfered with precise evaluation of preoperative or postoperative status of vision were eliminated. Thus, we excluded cases in which (1) adequate and satisfactory follow-up for a minimum of 2 years could not be obtained; (2) cases in which roentgen-ray therapy was administered postoperatively; (3) cases in which roentgen-ray therapy had been given within the year prior to operation; (4) cases in which the postoperative course was complicated to such a degree that we could not evaluate accurately the result of the initial operation (in other words, cases in which reoperation was carried out for massive postoperative clot, cases in which mental changes vitiated proper evaluation, and so forth); (5) cases in which cataract, glaucoma, or other nonrelated complications developed some time after the pituitary operation; (6) cases in which death resulted from other causes during the first 2 years after operation; (7) cases in which the tumor extended to involve other cranial nerves; and (8) cases in which the tumor penetrated into the 3rd ventricle or under the hypothalamus or into the lateral ventricle, necessitating other than the usual surgical procedure for pituitary adenoma. With these cases excluded, 71 cases were accepted as suitable for this study. In all of these patients, the operation had been done by standard transfrontal craniotomy.

Follow-up determination of visual fields was carried out at reexamination here in most instances. In a few cases, this information was obtained from the ophthalmologist in the patients' home community, and frequently he sent us charts of the visual fields.

The technic for evaluation of permanent impairment of vision reported by the American Medical Association Committee on Medical Rating of Physical Impairment1 was used. This technic is described in detail in the original publication and consists essentially of recording the corrected central visual...
acuity and degrees of peripheral vision for each eye along 8 radii. After combining this information, one obtains a value that indicates the per cent of impairment of vision. We have found that these percentages are reproducible to within 5 per cent and think that this is an accurate method of determining whether or not improvement followed surgical treatment.

For further analysis of the results in this series, the 71 cases were subdivided into 3 groups depending on the extent of preoperative loss of vision: Stage I, from 0 to 33 per cent (33 per cent loss corresponds quite well to a complete upper quadrant bitemporal hemianopsia or its equivalent); Stage II, from 34 to 65 per cent (65 per cent loss corresponds quite well to a complete bitemporal hemianopsia or its equivalent); and Stage III, from 66 to 100 per cent. Figs. 1, 2 and 3 illustrate field defects typical of the 3 categories.

Results

Of the entire group of 71 patients (Table 1), vision was improved after surgical treatment in 45 (63.5 per cent), vision remained the same in 11 (15.5 per cent), and vision was worse at last follow-up in 15 (21.1 per cent). Vision returned to normal in 14 (19.7 per cent).

It will be noted from Table 1 that less than half of the Stage I patients had improvement of vision following operation, while about three-fourths of those with Stage II and Stage III impairment improved. This disparity can be explained in part by the fact that 6 of the 27 Stage I patients had preoperative impairment of 5 per cent or less and consequently, since a change of more than 5 per cent was required for classification as a change in condition, in these patients a salubrious effect on vision would not alter the classification. In only 1 of these 6 patients was vision significantly worse at last follow-up examination. Thus, the percentage of patients shown as having had no change is larger in Stage I than in the other 2 stages. This also applies to the total percentage of patients improved. If one considers as improved the 5 Stage I patients whose preoperative impairment was less than 5 per cent (the factor of reproducibility) and whose impairment remained less than 5 per cent, the value for vision improved in Stage