Hypophysectomy

A Report on 50 operations for metastasizing Breast Cancer

By David Stevens (Bath)

These cases were operated on in the 4 year period from June 1961 to June 1965. They were referred by the radiotherapist in conjunction usually with a general surgeon or physician. They had all reached a stage when no further conventional treatment was possible because established local and distant spread was present. No case was refused provided the anaesthetist was willing to give an anaesthetic. These very sick patients are often presented at short notice to be added to a routine ear, nose and throat list, and the anaesthetist, usually with no junior help, has with great fortitude at all times provided ideal operating conditions.

Technique

The trans-ethmoid trans-sphenoid route was used. This was perfected by Mr. J. Angell James of Bristol and I am indebted to him for his characteristic kindness in showing me his method. In three cases it proved to be difficult to be sure of the midline of the sella. In Case No. 13 the cavernous sinus was opened and the rush of blood prevented hypophysectomy although a large muscle pack controlled the bleeding. In the other two cases when there was uncertainty about the midline of the sella a silver Cushing clip was placed in a recorded position between the dura and bone. Accurate lateral and antero-posterior X-rays were taken and at a second operation the position of the clip in relation to the sella was clear so that the operation could proceed without hazard to the cavernous sinus. In all these cases the sella lacked the usual "boss" into the sphenoid sinus so that the posterior wall of the sphenoid appeared featureless and concave. Macbeth's or Bateman's approach would have to some extent prevented these difficulties, although with experience it was possible to correct the tendency to go too far to the patient's left side in the sphenoid sinus, which tendency in all three cases was the cause of the difficulty.

Muscle with attached fascia from the lateral aspect of the thigh was taken before the sella was opened. This is useful to stop bleeding or C.S.F. loss if the gland has to be removed piecemeal. The ethmoid and sphenoid sinuses are packed with ribbon gauze soaked in acriflavine and the ribbon is threaded with a nylon thread so that it all comes out in one piece on the seventh day. There was no trouble with C.S.F. leakage after operation although in one case there was a flow which stopped on its own on the third day. No patient developed meningitis or visual field disturbances (which happened with isotope implantation in a few cases), but one developed a sixth nerve palsy which lasted for a week. For the patient this is a comparatively minor procedure and, if metastases allowed, they were up on the second day and home in 2 weeks. No difficulty was experienced with cortisone requirements, which, if the blood pressure

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was normal, was down to a maintenance dose of 25 mg. twice daily by the sixth day. In an anatomically uncomplicated operation the time taken was about 1 hour.

Results

The 50 patients are divided into three groups:

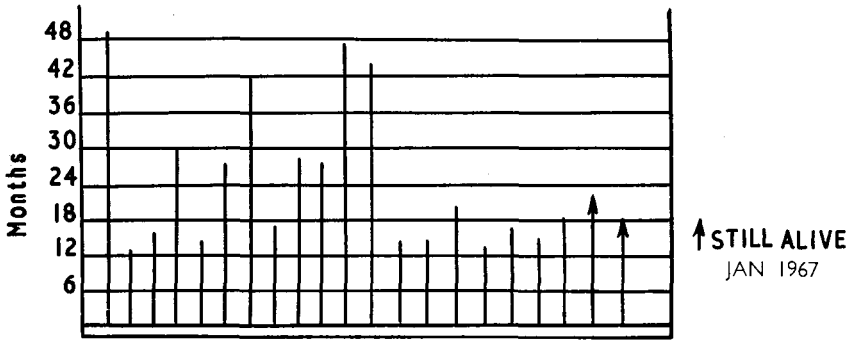
Group 1—Those surviving less than 2 months	9	18%
Group 2—Those surviving 3–12 months	20	40%
Group 3—Those surviving more than 12 months	21	42%

Group 1: All nine patients had gross and hopeless disease. The average age was 56 (37–74). Two died as a result of the operation, one, described above, from a torn cavernous sinus, and the other died in 3 days with uncontrolled diabetes. The operative mortality was therefore 4 per cent. One committed suicide. The other six all had visceral and/or skeletal deposits in addition to local recurrences.

Group 2: Although a survival time of 2 to 12 months is not spectacular, eight patients had a remission for a while, which on average gave them 7 months of life in relative comfort. Two had a disappearance of pleural effusion. In the others, X-ray appearances of bony deposits showed sclerosis with a relief of pain, but it was not unusual for one bone to appear to improve and at the same time for a previously normal bone to become involved.

TABLE I.

SURVIVAL TIMES OF 21 PATIENTS LIVING OVER 1 YEAR.



Group 3: These 21 patients had an average survival time of 24 months (Table I). The average age was 57 (37–68). Eight lived more than 2 years, four more than 3 years and two more than 4 years (Table II). One of these long survivors, a woman of 62, had secondary deposits in every vertebra and she eventually lost 6 inches in height although no paraplegia developed by the time she died 50 months after hypophysectomy. One other, who lived 41 months, had a disappearance of ascites and pleural effusions together with healing of a

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TABLE II.

DETAILS OF 8 PATIENTS LIVING OVER 2 YEARS.

Age at opn.	Survival time (months)	Time from Diagnosis to hypophysectomy	Metastases
63	50	R. 27 months L. 19 months	Skin
45	30	48 months	Skin
57	26	45 months	Bone
59	41	78 months	Skin and viscera
57	27	108 months	Bone, viscera and skin
37	27	27 months	Bone
62	50	1 month	Bone
52	45	1 month	Bone

large recurrence in the mastectomy scar. The latter reappeared within a year and was treated with further irradiation.

Effect of Oöphorectomy

Twenty-two women had a previous oöphorectomy. In 13 there was a good response and these lived an average of 14 months after hypophysectomy whereas in 9 who did not respond to oöphorectomy the average was 5 months.

Age

Under 50 Group 1—3 patients
Group 2—6 patients
Group 3—5 patients
} Average survival 10 months.

Over 50 Group 1—5 patients
Group 2—14 patients
Group 3—17 patients
} Average survival 15 months.

Professor Atkins (1963) found the younger ages did better than the older, but in this small series the reverse was true.

Response

Out of 50 patients there were 29 (58 per cent.) who had an objective remission. These had an average life after operation of 20 months whereas the non-responders lived 5 months. MacDonald (1962) reported a large series of over 1,000 cases of hypophysectomy and adrenalectomy and found that 30 per cent. had an objective remission lasting more than 6 months, and his figures for survival in the responders was 23 months and for the non-responders 7 months.

In this series most patients had vaginal smears and no correlation was found between response and the oestrogenic activity reported from the test, and indeed if several smears were done there was often a different report of oestrogenic activity. Similarly, estimation of urinary 17 ketosteroids proved to be no guide to the assessment of possible responders. The lengthy estimation of aetiocholanalone was not undertaken.

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The average time from the first definitive operation to hypophysectomy was:

Group 1—53 months (5 cases, i.e. no primary operation in 4)

Group 2—55 months (16 cases, i.e. no primary operation in 4)

Group 3—51 months (13 cases, i.e. no primary operation in 8)

It is the opinion of most surgeons that the longer the interval from the primary operation to hypophysectomy the greater the chance of a remission. In this series this was not so and in fact one patient who lived 50 months presented with an enormous fungating growth and widespread bony metastases. Another lived 45 months, and 1 month before hypophysectomy she had a simple mastectomy, bony deposits being already numerous.

Pathology

Table III shows the type of primary growth in relation to the response obtained. This is too small a series to draw any conclusion, but the polygonal cell carcinomata survived half as long as the others. In two cases both breasts were involved and the growth was reported to be different on the two sides.

TABLE III.

THE PATHOLOGY IN RELATION TO SURVIVAL.

Type of growth	Average survival (months)				Average of all cases (months)
	Responders	No.	Non-responders	No.	
Adenocarcinoma	32	6	4	7	17
Scirrhous Ca.	23	4	4	1	19
Polygonal Cell Ca	14	3	4	5	8
Anaplastic Ca.	18	7	4	3	14
Intraduct Ca.	27	1	4	1	15

No biopsy 12 cases.

Total Removal?

The first operation was done before all the instruments had arrived and the operative field was narrow and obscured and it is quite certain that not all of the pituitary was removed. This patient lived 50 months. Another at post mortem had remnants of gland present. She had lived 6 months only and had shown no sign of remission. At operation the front of the dura was traversed by venous sinuses which restricted the vertical incision, but, although the gland was removed piecemeal, it was thought at the time that all had been removed and she had a marked polyuria afterwards. It is not easy therefore to be sure that all the gland is out if it has to be removed in separate pieces and it is the lateral parts of the gland which in these circumstances escape notice. For this reason some operators put a sclerosing fluid or an obturator into the empty fossa. It may be that ultrasonic destruction of the gland will make for

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more certain total destruction (Arslan, 1966), but certainly implantation with yttrium by no means resulted in total destruction in many cases. This problem obtains equally when the trans-frontal route is used (Falconer, 1963) and several authors have pointed out that while post-operative tests may show a functional hypophysectomy small fragments of the gland may remain. However, total removal is the aim of the operation and this can only be achieved with certainty if the gland comes out as a whole and for this to happen great care is necessary in dissecting in the correct dural plane after the gland is exposed by the cruciate diathermy incisions.

Is it a Worthwhile Operation?

Compared with adrenalectomy the results are similar (Shepherd, 1966). The disadvantages of adrenalectomy, however, are that castration, if it has not already been performed, is necessary; it is a much bigger operation for the patient to suffer; accessory adrenal tissue may be present. MacDonald (1962) in his large series found the slightly better results by hypophysectomy were not statistically significant. With no clear guide to the selection of cases it is difficult not to operate on all of them when presented and this is certainly the attitude of the patient and her relations. This is an operation with a mortality rate of about 4 per cent., which, considering the very poor general condition of the patients, is acceptable. No complications have occurred in this series of patients, apart from polyuria, which is easily controlled until it spontaneously disappears in 6–8 weeks, or in the ones operated on since. If a cure cannot be offered in malignant disease then operations for relief of pain and for the prolongation of life have a proper place in the management of these patients. It is an operation well within the competence of most Ear, Nose and Throat departments. Whether one is statistically minded or clinically minded, however, it may be as well to remember the remark of one excellent patient who had experienced vast changes in her well being from mastectomy to hypophysectomy, after which she had a dramatic improvement for a time and when she realized that, after all, all was not well she said, "it made dying more difficult".

REFERENCES

ARSLAN, M. (1966) *Ann. Otol. (St. Louis)*, **75**, 798.
ATKINS, H. J. B. (1963) *Proc. roy. Soc. Med.*, **56**, 389.
BATEMAN, G. H. (1963) *Proc. roy. Soc. Med.*, **56**, 393.
FALCONER, M. A. (1963) *Proc. roy. Soc. Med.*, **56**, 390.
MACBETH, R. G. (1961) *J. Laryng.*, **75**, 70.
MACDONALD, I. (1962) *Surg. Gynec. Obstet.*, **115**, 215.
SHEPHERD, J. A. (1966) *J. roy. Coll. Surg., Edinb.*, **12**, 34.

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