The African Journal of MEDICAL SCIENCES

Volume 4

1973

BLACKWELL SCIENTIFIC PUBLICATIONS
Oxford London Edinburgh Melbourne

Afr. J. med. Sci. (1973) **4**, 137–141.

Intracranial Tumour Pattern in Ibadan, Nigeria

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(*Received* 21 *April* 1972)

Summary. From our present total of 186 patients with space-taking masses, a definite shift is shown towards the metastatic neoplasms which now form the largest proportion (27·96%) in our series of tumours of the brain and its hard and soft coverings at the UCH in Ibadan, Nigeria. In the cases of metastases, nearly half are secondary deposits from chorion carcinoma of the uterus. Following the metastatic group, and in decreasing frequency, are the neurogenous neoplasms (23·12%), the meningiomas (18·82%), the pituitary gland neoplasms (17·20%), the tuberculomas (7·53%) and the miscellaneous mass lesions (5·37%). One-third of the tumours were found in patients within the first two decades of life and only 7·53% occurred after the fifth decade. Metastatic neoplasms are the most frequent (38·96%) of the tumours in the third and fourth decades and the neurogenous neoplasms are commonest (42·42%) in the first two decades. However, the meningioma still remains the single most prominent neoplasm of all brain tumour groups at Ibadan, be they primary or secondary.

Résumé. Sur le total actuel de 186 malades présentant des processus expansifs intracrâniens, un mouvement marqué se manifeste vers les néoplasmes métastatiques qui constituent maintenant la plus forte proportion (27,96%) de nos tumeurs du cerveau et de ses enveloppes à l'U C H d'Ibadan, Nigéria. Près de la moitié des métastases proviennent du carcinome du chorion de l'utérus. Après les métastases, et par ordre de fréquence décroissante, viennent les néoplasmes neurogènes (23,12%), les méningiomes (18,82%), les néoplasmes de l'hypophyse (17,20%), les tuberculomes (7,53%) et les lésions diverses (5,37%). Le tiers des tumeurs ont été constatées chez des moins de vingt ans et seulement 7,53% au-delà de 50 ans. Les tumeurs métastatiques sont les plus fréquentes des tumeurs (38,96%) entre 20 et 40 ans et les néoplasmes neurogènes entre 0 et 20 ans (42,42%). Toutefois, le méningiome demeure le plus fréquent de toutes les tumeurs du cerveau à Ibadan, qu'elles soient primaires ou secondaires.

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INTRODUCTION

In the intensification of our clinical search and continuing re-evaluation of our records at the University College Hospital in Ibadan following our analysis of 134 intracranial masses in 1970 (Odeku *et al.*, 1971), we have seen an additional fifty-two tumours of the brain. A definite and peculiar alteration in the pattern which the various tumours in the Ibadan series have formed and maintained is illustrated in the evaluation of the 186 tumours here presented. In regard to in-patient hospital admissions (150, 314), a brain tumour frequency of 0·1237% is appreciated in the period (1957–71) during which the tumours were found at the UCH, Ibadan. All suspected brain tumours, clinically diagnosed but without histologic confirmation, have been excluded.

HISTOLOGICAL TYPES OF THE TUMOURS

Figure 1 shows the relative proportions of the various histologic groups of tumours. One hundred and sixty-nine (90·86%) of the tumours are neoplastic, 117 (62·90%) being primary. The metastatic lesions (27·96%) form the largest group and the miscellaneous masses (5·37%) the least. The granulomas, all of which are tuberculomas, make up 7·53% of the masses.

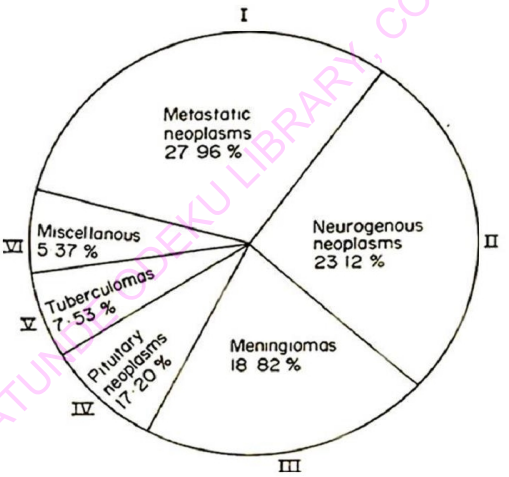

FIG. 1. Type distribution of 186 cases of intracranial tumours, UCH, Ibadan.

Among the primary neoplasms of the brain the neurogenous ('glioma') group constitutes 23·12% of the total tumours in this series, the meningiomas, 18·82%, and the pituitary adenomas and craniopharyngiomas together account for 17·20%. Three of the tumours in the miscellaneous group are essentially of neuroepithelial origin in the ependymal series. If grouped with the 'gliomas', the neurogenous neoplasms increase to 24·73% and the miscellaneous are reduced to 3·76%. These minor differences have no significant effect on the overall pattern presented.

Of the fifty-two metastatic neoplasms, nearly half are due to secondary chorion carcinoma in women in the child-bearing age group. About 12% of the chorion carcinoma patients in Ibadan develop central nervous system manifestations (Adeloye *et al.*, 1972). Other primary

sites of the lesions include the lung, thyroid gland, urinary tract, liver, prostate gland, breast and colon.

In the neurogenous ('glioma') group, the astrogliomas (over one-third of the group) remain more frequent than others and the pineal neoplasms are strikingly prominent. The glioblastoma multiforme, oligodendroglioma and the acoustic neurinomas have only one or two cases each. A few examples of the medulloblastomas and ependymomas have been seen.

The majority of the meningiomas are of the meningothelial type and are located more at the convexity than at the base, although a cluster is found at the sphenoidal wing in the Ibadan distribution. At 18·82%, of all the intracranial masses, meningiomas are the single most commonly encountered neoplasm in the Nigerian. The next single neoplasm in frequency being the metastatic chorion carcinoma at 11·12%. One of the meningiomas, in an adolescent, underwent sarcomatous change.

Of the primary tumours of the sella turcica region, the adenomas of the pituitary gland (mostly chromophobe) are 11·82% of all masses. No case of basophilic adenoma has been found. The craniopharyngiomas, nearly all cystic, are about half as many as the adenomas. One metastatic carcinoma seen in the pituitary gland has not been included in this group.

The distribution in the fourteen cases of tuberculoma remains as previously described (Odeku *et al.*, 1971); virtually all of the intracranial masses being cerebral in location, particularly in the parietofrontal regions. Calcification of the lesion is a characteristic feature in about two-thirds of the cases.

In the miscellaneous group are found Burkitt's lymphoma masses in the brain, a large arachnoidal cyst in the cerebellopontine angle, 'ependymal' cysts in the septum pellucidum and the third ventricle, a peritorcular haemangiosarcoma arising as a painless swelling after trauma; a huge aneurysmal cyst of the occipital bone (encroaching upon contents of the posterior fossa to create hydrocephalus) and multifocal neurofibrosarcoma of the skull and epidural space.

GENERAL CLINICAL PATTERN

The age and sex distributions in the various groups of tumour are seen in Figs. 2 and 3 respectively. There is a slight preponderance of males in the overall series. The tuberculoma group has the highest male preponderance of 6 to 1 ratio in the non-neoplastic group. Among the neoplasms, nine of the ten craniopharyngioma cases are in males. Only in the group of metastatic neoplasms is there a female preponderance in the ratio of 10 to 3 because of chorion carcinoma deposits. In Fig. 2 it is noted that due to the high proportion of 'gliomas' in children, 35·4% of all the tumours are found in the first and second decades. The tuberculomas and the craniopharyngiomas also contribute to these two decades. The 'gliomas' alone form 42·42% of the masses in this age group. Metastatic chorion carcinoma, aided by the meningiomas and the pituitary adenomas, accounts for the highest peak found in the 4th decade. The meningiomas are the most evenly distributed tumours by age. Only 7·53% of the masses occur after the age of 50 years.

The clinical symptomatology seen in the groups of these 186 tumours of the brain at Ibadan are varied. In general, increased intracranial pressure, convulsion and weakness of the limbs have been prominent. For chorion carcinoma metastases Adeloye *et al.* (1972) have identified different clinical syndromes which the patients may present, simulating cerebrovascular accident, encephalitis or space-occupying lesion. Intracranial hypertension, convulsion and hemiparesis in a child with a calcified focus in a cerebral hemisphere point

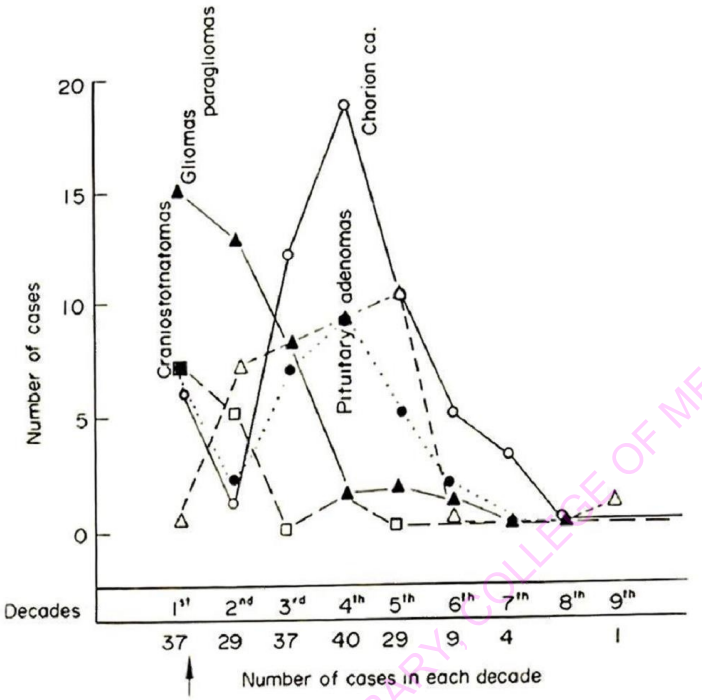

FIG. 2. Age distribution in 186 cases of intracranial tumours, UCH, Ibadan. ○—○, Group I metastatic group; ▲—▲, Group II neurogenous group; △ - - - △, Group III meningioma group ● . . . . ●, Group IV pituitary group; □ - - - □, Group V tuberculoma group. Group VI miscellaneous group—not shown.

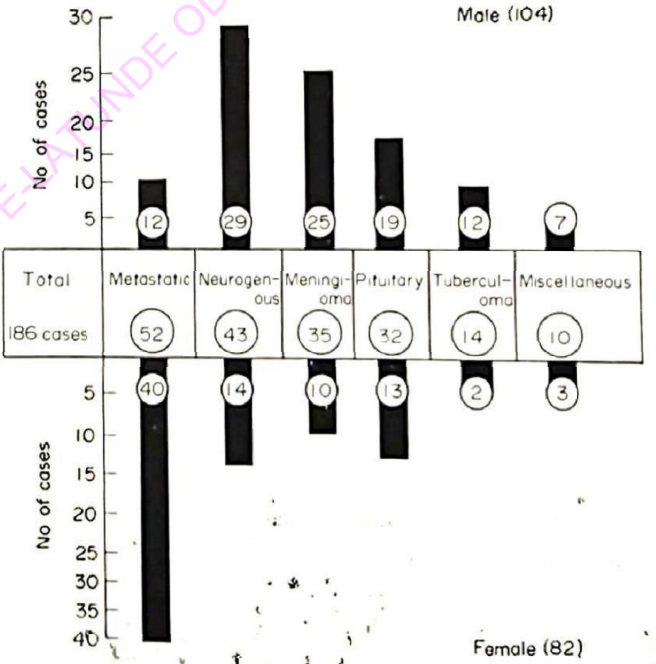

FIG. 3. Sex distribution in 186 cases of intracranial tumours, UCH, Ibadan.

strongly to a tuberculoma. In their biologic cause and with surgical removal of the lesion in many cases (no radiotherapy facility being yet available) the meningiomas, pituitary tumours and the tuberculomas have been amenable to treatment. The prognosis however with the neurogenous ('glioma') and metastatic neoplasms has been poor.

COMMENT

The Asian records (Katsura, Suzuki & Wada, 1959; Dastur, Lalitha & Prabhaker, 1968) show a frequency for metastatic intracranial masses comparable to the Western records. Ramamurthi (1970) reported seventy-five secondaries in a total of 1249 brain tumours, a frequency of 6%. A Western high of 8·7%, by Grant (1956), coincides with the frequency of metastases among the fifty-seven neoplasms of Billinghurst (1966). A higher frequency of 11·6% for Africans was recorded by Collomb *et al.* (1963) with the five cases in their series.

In the previous communication on 134 intracranial masses at Ibadan (Odeku *et al.*, 1971) twenty-one metastatic lesions (15·66%) were found to be fourth in frequency among the six major groups of tumours listed. The neurogenous ('glioma') group was the largest, containing 29·1% of all of the tumours. A peculiar shift in frequency, due to increased number of metastatic chorion carcinoma found, is strikingly noticeable in the present series of 186 tumours of which the largest group of fifty-two (27·96%) are metastases. The 'gliomas', next in frequency, are reduced to 23·12%. In his series of 6000 cases of brain tumours, Zülch (1957) gave a combined total of 50·9% for the neuroepithelial tumours ('gliomas'), a frequency better than twice as high as in the present Ibadan series. Only 4%, however, of his tumours were metastatic; a frequency eight times less than in Ibadan. It is of note that in both the proportions of meningiomas are about equal (18% in the large Western series of Zülch to the 18·82% at Ibadan).

ACKNOWLEDGMENT

We are much indebted to The Medical Illustration Unit, University of Ibadan (particularly Mr A. O. Enyogai and Mr I. G. A. Onwunumah of the Photography Section and to Mr L. A. Anifalaje, the Medical Artist) for their assistance with the illustrations.

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