THE PREVALENCE AND CLASSIFICATION OF OCCULT PITUITARY LESIONS AT AUTOPSY IN KENYATTA NATIONAL HOSPITAL, CITY MORTUARY AND ARMED FORCES MEMORIAL HOSPITAL IN NAIROBI.

A DISSERTATION SUBMITTED IN PART-FULFILLMENT FOR THE DEGREE OF MASTER OF MEDICINE IN PATHOLOGY UNIVERSITY OF NAIROBI.

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ABSTRACT

Introduction

The pituitary gland is important in hormonal secretion and regulation. It is located in the sellar turcica and in direct communication with hypothalamus. It is often involved in disease which commonly presents with non-specific symptoms and signs while at times there may be no symptoms until in late stage disease or may be found as an incidental finding at autopsy.

Objective

Broad objective

The aim of this study was to estimate the prevalence of occult pituitary lesions and classify them at autopsy in Kenyatta National Hospital, City Mortuary and Armed Forces Memorial Hospital Mortuary in Nairobi.

Specific objectives

1. To determine the frequency of occult pituitary lesions at autopsy.
2. To classify the pituitary lesions by histology and sub-classify the adenomas by Immunohistochemistry.
3. To determine the variations in the types of occult pituitary lesions between the various age groups.

The design and sample size

This was a cross-sectional descriptive study of two hundred autopsy specimens of pituitary gland, between December 2008 and June 2009.

The setting

The study was done in Kenyatta National Hospital (KNH), City Mortuary and Armed Forces Memorial Hospital (AFMH).

Methodology

Histological sections were prepared from 200 pituitary gland autopsy specimens of subjects aged four years and above who were received in the Kenyatta National hospital (KNH), City Mortuary

and AFMH. The sections were examined for all the pituitary lesions and immunohistochemistry studies for Prolactin, hGH, ACTH, TSH, FSH and LH were done for the lesions diagnosed as pituitary adenomas to sub-classify them further.

Data analysis

The results were documented and analyzed using appropriate software including Statistical Program for Social Scientist (SPSS-version 13.0).

Results

The 200 autopsies were done and all the pituitary gland specimens were examined. Of these, 69.0% were males while 31.0% were females. Immunohistochemistry studies were done for the pituitary adenomas, no pituitary carcinomas were found. Eighty one percent (81%) of the deaths were related to trauma. The commonest cause of death was head injury (40%), multiple injuries caused (19.0%) of the deaths and infections accounted for (5.5%). The microscopic findings of the lesions were as follows: - Eighty two percent (82%) of the pituitary gland specimens at autopsy were found to harbour occult lesions while (18%) showed no abnormality. Vascular-related lesions (63.5%) were possibly related to trauma and included vascular congestion (51%), haemorrhage (34.5%), and edema (1.5%). Neoplastic lesions (20.0%) were adenomas (10%), basophils invasion (8.5%) and intrasellar-meningiomas (2.5%). Non-neoplastic lesions (23.5%) included Rathke's cleft cysts (15%), lymphocytic infiltration (7%), and other cysts (3.5%). Other findings included salivary gland rests (34.0%), Fibrosis and hyalinization (10.5%), calcification and psammoma bodies, amyloid deposits, squamous metaplasia of the glandular rests, nerve entrapment, ossifications and colloid casts all accounted for (10.5%).

Immunohistochemical stains showed adenomas to be somatotrophs (35%), lactotrophs (15%), somatomammotrophs (15%), corticotrophs (10%) and null cell adenomas (15%), while (10%) remained unclassified due to tissue inadequacy. The lesions showed variation with age, Basophils invasion was more common in those subjects 30 years and above (13.1%) than in subjects aged 7-29 years(1.3%), lymphocytic infiltration was 9.8% in subjects aged 30 years and above and 2.6% in subjects 7-29 years while Rathke's cleft cysts were 18.9% and 9.0% respectively in these two age groups. These differences were statistically significant.

Conclusion

Occult pituitary lesions at post-mortem are frequent, majority being the vascular-related lesions, which have some association with trauma. Majority of neoplastic lesions are simple pituitary microadenomas, three-quarters of which are immunoreactive for human growth hormone, prolactin, and ACTH. The common non-neoplastic lesions are Rathke's cleft cysts, lymphocytic infiltration, salivary gland rests. Others were infrequent. This study suggests that trauma accounts for undetected vascular lesions of the pituitary which may partly account for the deaths in some of these patients. Some lesions such as basophils invasion, lymphocytic infiltration and Rathke's cleft cysts showed significant variations with age, they were more prevalent in those subjects 30 years and above.

Recommendations

Because occult pituitary lesions are common, a study to evaluate the associated clinical features is recommended. Head injury patients should be investigated for pituitary lesions and endocrine dysfunction. A study is recommended to evaluate the role of vascular-related pituitary lesions in head injury deaths and whether they may be useful in forensic investigations because of their association with trauma. A study to determine the association between basophils invasion, infections and suicide would be very useful. A larger study to sub-classify the adenomas according to WHO Classification and another to establish the prevalence of pituitary lesions in subjects less than four years old are also recommended.