Title: Nasopharyngeal cancer in Sudan: Clinical, Epidemiological, Histology and Molecular Characteristics.

Authors:
Nazik E Abdullah¹, Ameera M Adam², Eman H Khalifa ³, Eltayeb I M⁴, Hamad K M⁵ and El Hassan A M⁶

1. Assistant professor, Department of Surgery (FRCSI, DML)
   Faculty of Medecine, University of Khartoum

2. Bsc (Faculty of Medical Laboratory Sciences)
   Department of Histopathology and Cytology, University of Khartoum
   Msc student, Molecular Biology Section. Institute of Endemic Diseases,

3. Lecturer in Department of Histopathology and Cytology, Faculty of Medical Laboratory Sciences, University of Khartoum. PhD student, Immunology section,
   Institute of Endemic Diseases, University of Khartoum

4. Head Department of Molecular Biology
   Institute of Endemic Diseases, University of Khartoum

5. Assoc. Prof of Oncology (FFRCSI,DMRT,DSN) ,Faculty of Medicine,
   University of Khartoum

6. Emeritus Professor of Pathology ,FRCP, FRCPATH, PhD, DSc.
   Institute of Endemic Diseases, University of Khartoum.

Correspondence to:
Nazik E Abdullahl, Assistant professor, Department of Surgery (FRCSI, DML)
Faculty of Medecine, University of Khartoum , Qasr street, PO Box 102
Phone +249 912161944   Fax +24911 779712   e mail: Nazikfad1223@yahoo.co.uk
Abstract

Nasopharyngeal cancer is a common cancer among Sudanese; it is the fifth among men and the ninth among women.

Objectives: To study the epidemiology, clinical features, staging, etiology and pathology of nasopharyngeal cancer in Sudan.

Study design: This is a prospective study.

Setting: ENT Khartoum Teaching Hospital, Khartoum City, Sudan.

Subjects and methods:

Patients suspected to have nasopharyngeal cancer were assessed during the period Mar 2006 to Dec 2008.

Data from Confirmed cases was obtained; it included clinical and epidemiological information.

Results: One hundred and fifty five cases were studied. Bimodal age distribution of the disease was noted with two peaks, one at 15-19 years and one at 50-54 years. The male to female ratio was 2.6:1 and a distinct geographical distribution of the disease was noted, with clustering of cases in the towns of Dilling, Kadogli and the surrounding rural area of the Nuba Mountains, these areas in the Western States, were reported to be of high background radiation due to naturally produced radioactive uranium. Nuba tribe headed the list among other tribes.

Seventy percent of cases presented at stage IV. There was predominance of type II (27.7%) and type III (62.5%). Patients were treated by neoadjuvant chemoradiotherapy. Of the 62 fresh nasopharyngeal specimens that are studied for the
presence of EBV by Polymerase Chain Reaction (PCR), 87.1% and 83.8 % were positive using LMP-1 and NA-1 as primers.

**Conclusions:** Nasopharyngeal cancer is an important form of cancer in Sudan. Some tribes are significantly more affected than others. Patients present with advanced disease. EBV is present in the majority of studied fresh specimens. Environmental and genetic factors need further studies. Screening at risk populations that aim at early diagnosis and management of patients is recommended.

Key words: Nasopharyngeal cancer, Sudan, epidemiology, clinical staging, pathology, etiology.