Sinonasal Mucosal Melanoma In Maiduguri, Nigeria. A Report Of Three Cases And Literature Review

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Abstract

Sinonasal malignant melanoma is a rare tumuor especially amongst dark-skinned population. Few centers had comprehensive data on epidemiology, optimum treatment regimes and survival. Mucosal melanomas belong to the class of tumours that, on light microscopy, may be confused with other malignancies including sarcomas, plasmacytomas, lymphomas and carcinomas. The diagnosis may require confirmatory immunohistochemical stains(S-100 protein, HMB-45, Vimentin and cytokeratine). Combined therapy i.e. surgical excision, radiotherapy, chemotherapy offer the best chance of cure. We evaluated 3 patients who were found to have mucosal malignant melanomas of sinonasal tract. All presented in an advanced stage and were lost to follow-up after histological specimen was obtained. This necessitate the report to highlight the presence of sinonasal malignant melanoma in our mist and to sensitize the public and health care providers in the developing countries the need to equip hospital laboratories with appropriate diagnostic tools and treatment facilities. Advances in immunomodulation, antibody delivered therapy and perhaps gene therapy with effective chemotherapy and radiotherapy will form the basis for future treatments of the disease.

Study Area: University of Maiduguri Teaching Hospital. Maiduguri, Borno State, Nigeria.

INTRODUCTION

Melanoma is a neoplastic disorder produced by malignant transformation of the normal melanocyte. Melanocytes are the cells that produced the pigment melanin, the main substance responsible for pigmentation of the skin and other non-cutaneous sites. Naevi (mole) are aggregation of melanocytes that are present from birth often do not make their appearance until puberty. During embryologic development, precursor melanocytes arise in the neural crest, as the fetus develops, these cells migrate to areas including the skin, meninges, the eye, upper oesophagus and the mucosal surface of the oral cavity, nasal cavity, paranasal sinuses and the anorectal, urogentalia.[1] Several factors are important in producing malignant transformation of the melanocyte. Age, hormonal status, genetic predisposition, environmental factors, trauma, other risk factors include dysplastic naevus syndrome, xeroderma pigmentosum ,family history of melanoma, exposure to certain carcinogens and sun light.[123]

Sunlight (ultraviolet radiation) appears to play an important role in the development of the skin malignant melanoma and lightly pigmented individuals are at the higher risk for development of melanoma than are darkly pigmented individuals.[14] In general, melanomas are more common in Caucasians than in Asian and black population.[45] The incidence of melanoma worldwide is 2-4/100,000 and is rising.[6789] Women develop melanoma slightly more often than the men. It is extremely rare for melanoma to occur before puberty, and the median age for diagnosis is in the late forties.[10]

Melanoma usually present as a pigmented skins lesion that has recently changed. The lesion typically have irregular borders, variegated pigmentation ranging from pink to blue to black and a raised, irregular surface. In black this lesion occur commonly on the soles of foot, palm and under the nail bed. The management of malignant melanoma involves prevention, early diagnosis, surgical excision and management of metastatic diseases. Diagnosis is made based on clinical ground and biopsy subjected to histopathological and immunohistochemical analysis. When melanoma is suspected, an excisional biopsy should be performed. This biopsy removes the lesion and the layers beneath it, allowing the depth of the lesion to be accurately determined. The depth of the lesion determines prognosis and treatment. This depth is described in two ways: Breslow thickness, which is

the depth in millimeters and Clark`s level, which describes depth of invasion by the tissue it invades. Combined therapy i.e. surgical excision, radiotherapy and chemotherapy offer the best chance of cure. Immunotheraphy e.g. Interferon has also being tried with some degree of success.[111213] The five years survival rate are about 25 percent.[14]

Mucosal melanoma of the head and neck form a special group. They are associated with aggressive behavours and poorer prognoses than skin lesions of the same region, but fortunately rare.[1114] Malignant melanoma of the sinonasal mucosa is about 1% of all malignant melanomas. It is uncommon disease with few centers having comprehensive data on epidemiology optimum treatment regimes and survival.[12] The mode of presentation is similar with other sinonasal tumours, usually they present with recurrent rhinorrhoea, epistaxis, nasal obstruction and occasionally black nasal discharge. The commonest site of lesion in the nose is the lateral wall and septum, presents as a pigmented, necrotic haemorrhagic nasal mass or occasionally as a simple nasal polyps as in the case of amelanotic melanoma. Mucosal melanoma belongs to the class of tumours that, on light microcopy, may be confused with other malignancies(including sarcomas, lymphomas, plasmacytomas and carcinomas) which often diagnosed as anaplastic carcinoma or undifferentiated malignancy unless the intracytoplasmic pigment or the melanoma cytoplasmic antigen is sought, thus emphasizing the importance of sending all specimens removed for pathological examination and immunohistochemistry analysis.[121415]

It is generally accepted that the radical excision via lateral rhinotomy, maxillectomy, craniofacial resection or even endoscopic clearance of the primary tumour with or without adjuvant postoperative radiotheraphy is the best treatment for all patients especially those with no evidence of distant metastasis.[1314]

We evaluate three patients whom were found to have mucosal malignant melanoma of the nose and paranasal sinuses, all presented in an advance stage and were lost to follow-up after histological specimens was obtained. These necessitate the report to highlight the presence of sinonasal malignant mucosal melanoma in our environment and to sensitize the public and the health care providers to equip hospitals laboratories with appropriate diagnostic tools and treatment facilities especially to the less privileged.

CASE SUMMARY

CASE NO.1

55 years male, Kanuri, Farmer. Presented with 2 years history of progressive right nasal obstruction, recurrent epistaxis, postnasal drip, dark coloured rhinorrhoea. Progressive left cheek swelling disfigurement of the nose, left progressive visual loss, diplopia, hearing loss, otalgia and tinnitus. There was associated trismus and weight loss. No history of smoking of cigarette or consumption of alcohol, no family history of similar illness.

A middle aged man, pale, emaciated no significant peripheral lymphadenopathy. Dull intact left tympanic membrane. A huge midfacial multi-lobulated mass extending superiorly from the right lower orbital margin, nasion, left orbit to the upper lip inferiorly. It overflows the cheek bilaterally on its horizontal plane. The external nose was completely absorbed into the mass and the left eye was obscured on its medial side. There were areas of black nodules with bleeding foul smelling raised edged ulcers. Severe trismus, lost most of the upper dentition, bilateral palatal bulge, no palpable cervical lymph node enlargement. Figure1. No abnormality was found in the chest and abdomen. Packed cell volume was 30%, leucocytosis ($12x10_9/_L$), blood [120mm/hr] westergren method. Bilateral moderate conductive hearing loss on tympanogram. Liver function test, urinalysis ,electrolyte, urea and creatinine are within normal limit. Abdominal utrasound was normal. Radiograph of the sinuses showed soft tissue shadow completely occupying the region of the nose and the left maxillary region with bony distructions. Incisional biopsy of mass under local 4% xylocaine spray done, histology of the specimen was reported as melanocarinoma of spindle cell variant. Figure 5. He could not afford to pay for surgical excision and reconstruction and was referred for chemotherapy and radiotherapy of the primary site and the cervical region. He was lost to follow up.

CASE NO.2

50 years, male, kanuri, Islamic Teacher. Presented with one year history of progressive left nasal obstruction, recurrent epistaxis, post nasal drip, rhinorrhoea , growth on the nose, loosening, lost of dentition and weight loss. There was no significant otological, oropharyngeal or ophthalmic symptoms.

A middle aged man not pale with no significant peripheral lymphadenopathy. Otolological and oropharyngeal examination was grossly normal

Examination of the nose revealed a dark fungating mass in the left alar region with fleshy haemorrhagic intranasal mass and deviation of septum to the right. There was palatal involvement, loosening and lost of some of the upper dentition. Figure 2. There was no palpable cervical lymph node enlargement, chest and abdomen appeared grossly normal. Full blood count was normal, blood film showed lymphocytosis the erythrocyte sedimentation rate was raise (104mm/hr) wintergreen method. Liver function test, urinalysis, electrolyte urea and creatininie were within normal limit. Radiograph of the sinuses revealed soft tissue shadow in the left nasal cavity with bony erosion of the walls of maxillary antrum. Figure 4. Normal Chest radiograph. Examination under anaesthesia of the nose, nasal biopsy done. The operating finding was that of fleshy, haemorrhagic left sinonasal mass. Histology of the specimens was that of malignant melanoma of the nose and maxillary sinus. He could not afford to pay for surgical excision and reconstruction and was referred for radiotherapy of the primary site and the cervical region. However, we lost him to follow up.

CASE NO.3

50 years Female Housewife, presented with 2 years history of recurrent epistaxis, progressive nasal obstruction, postnasal drip, left cheek and nose swelling, toothache, loosening of teeth, left otalgia and tinnitus,no significant oropharyngeal symptoms, coughs occasionally with moderate weight loss, a mother of 4 children, no family history of similar illness, no history of taking snuff, smoking cigarette or alcohol consumption. Admitted in specialist Hospital Maiduguri twice for obstetric problem. A middle aged women, not in obvious respiratory distress but mouth breathing not pale, a febrile, anicteric, no significant peripheral lymphadenopathy, Tympanic membrane were intact and dull, there was obvious facial disfigurement with cheek, nose and upper alveolar swelling, fleshy right intranasal mass with contact bleeding . Figure 3. There was no palpable cervical lymph node enlargement. No abnormality was detected in the chest and abdomen. Full blood count and blood film was normal. Raised erythrocyte sedimentation rate [112 mm/hr] westergren method. Liver function test, urinalysis, electrolyte, urea and creatinine were within normal limit. Normal abdominal utrasonography. Radiograph of the sinuses revealed intranasal soft tissue mass completely obliterating the right nasal cavity with septal deviation to left, left complete opacity with bony erosion of walls of the left maxillary antrum. Normal chest radiograph. Had examination under anaesthesia of the nose and biopsy. The operating finding was that of fleshy mass occupying the whole of right nasal cavity and maxilla. Histology of the specimens was that of malignant melanoma of the nasal cavity and maxillary sinus. She was referred for radiotherapy but we lost her to follow up.

Figure 1

Figure 1: The external Nasal pyramid was completely distorted, absorbed into the mass, the left eye was obscured on its medial side. Adhesive plaster covered bleeding necrotic area

Figure 2

Figure 2: Sinonasal mass eroding the left alar, note dark coloured necrotic area.

Figure 3

Figure 3: Sinonasal mass with gross left facial disfigurement with hemipalatal and alveolar involvement.

Figure 4

Figure 4: Plain sinuse radiograph, waters view showing soft tissue shadow(small arrow) in the left nasal cavity, maxilla and bone destructions(large arrows).

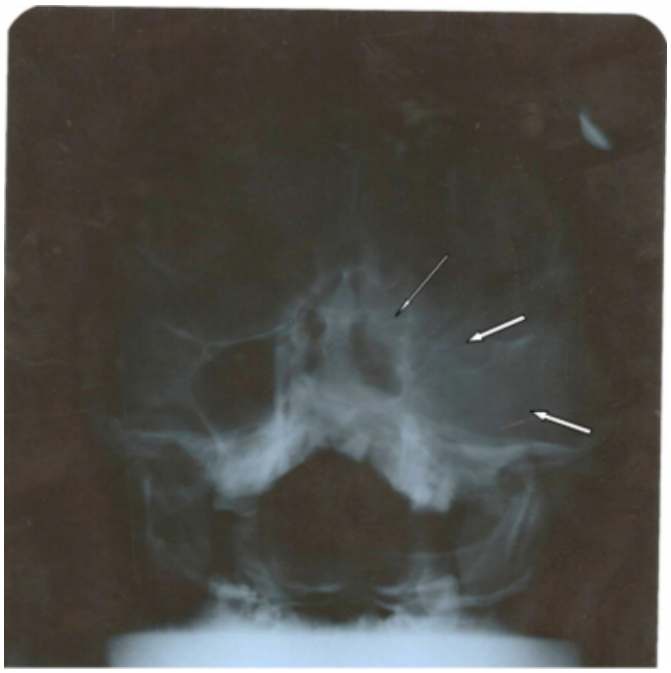
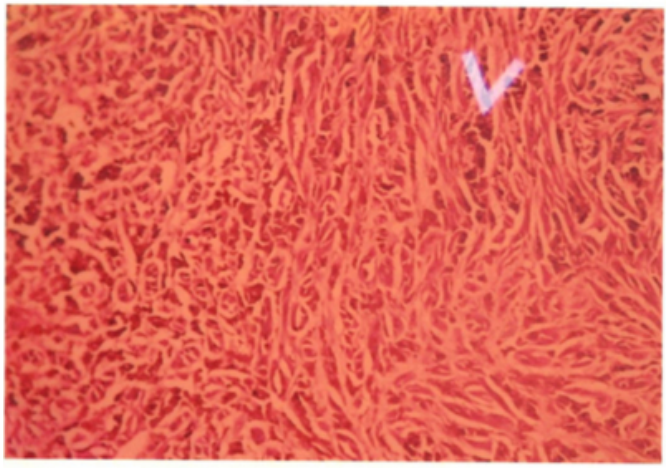


Figure 5

Figure 5: Photomicrograph showing melanocarcinoma, spindle cell variant (X 160 H&E).



DISCUSSION

Malignant melanoma of mucosal surfaces of head and neck are very rare, according to the American college of surgeon commission report(1998) 91% of all malignant melanomas were cutaneous only 1.3% were mucosal, of these 69% were sinonasal.[16] We recorded only 3 histologically confirmed sinonasal mucosal melanoma in 20 years.

Mucosal melanoma tends to occur in an older age group than their cutaneous counterpart from 5th to 8th decade,[17] our patients were in their 6th decade.

Men are more commonly affected than women[17] in contrast to the cutaneous melanoma. Caucasians race are at higher risk of developing malignant melanoma than the blacks though melanocytes were found in sinonasal tract of all race.[18] The melanin in the dark-skinned people has been found to have a natural sun protection factor(SPF) and can filter twice as much ultraviolet(UV) light as that of a light-skinned person. This protection, however, is not complete, melanoma is more commonly found on soles, palms or nail beds in dark-skinned people.[19] Although UV play important role in development of cutaneous melanoma it appears not so especially in head and neck melanomas which occurs de novo without any obvious precursor lesion in most of the cases.[202122]

Nearly all sinonasal mucosal melanoma were on the septum and turbinates very few were located in the sinuses,[23] like any malignant sinonasal tumours the relative inaccessibility of the mucosa to self examinations often delays diagnosis and leads to late detection even in the advanced countries, typically this delayed presentation was seen in all our

patients who presented with massive disfigurement, nasal mass with bone destructions. There is a relatively low incidence of regional neck metastasis,[24] none of our patients despite advanced disease presented with neck nodes or distant metastasis.

Histological diagnosis is mandatory and nearly all melanomas are confirmed by immunohistochemical analysis using S-100 protein, HMB-45, Vimentin and cytokeratin stain regardless of the site.[25] Magnetic Resonance Imaging and CT-Scan is the best imaging technique because of bone invasion in late presentation,[26] our patients could not have these imaging facilities because it was too expensive and not available in our hospital at the time of presentation.

At present, surgical excision remains the mainstay of treatment; however, anatomical complexities can hamper attempts at complete excision. Radiotherapy has not traditionally been relied on for routine treatment; chemotherapy is at present, employed principally in the treatment of disseminated disease and for palliation.[14]

Mucosal melanomas are far more aggressive and have much poor prognosis than the cutaneous melanoma. At the time of diagnosis the depth of invasion and tumour thickness would have reached a dangerous limit.[27] The prognostic value at various levels of invasion as established in the Clarke's classification of cutaneous melanomas does not apply for mucosal melanomas because of the absence of histological landmarks.[28] The survival rate was 44% for 5 years, 33% for 10 years and 17% for 20 years. Primary surgical treatment was associated with prolonged survival and nearly all untreated patients are dead within 4 years.[23]

We could only obtained biopsy specimen from our patients, all decline radical excision the reason not far from social and financial constraints which was common problems in our environment and were referred for radiotherapy because of non availability of such facilities in our hospital of which we are not certain if they have receive the treatment, we lost all of them to follow-up.

CONCLUSION

Health education on early presentation, provision of well equipped hospital laboratories to handle and process all kind of biopsy specimens for histopathological and immunohistochemical analysis, more imaging technique and health insurance scheme to cover the less privilege are important particularly in the underdeveloped countries such as Nigeria.

Advances in immunomodulation, antibody delivered therapy and perhaps gene therapy, with or without effective chemotherapy and radiotherapy, will form the basis for future treatments of this disease.

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