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Case Report

Huge Right Thigh Plexiform Neurofibroma in A 25-Year-Old Male With von Recklinghausen's Disease. A Case Report

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ABSTRACT

Neurofibromas are benign tumours of peripheral nerve sheath origin. This is a case of a 25-year-old man with neurofibromatosis type 1 who presented with a 20-year history of a huge right lower limb mass that over time led to significant morbidity. Excision biopsy of the mass revealed a plexiform neurofibroma on histology. Neurofibromas present with lesions that could develop over time into huge masses, leading to mass effect with significant morbidity. Early diagnosis, prompt treatment via a multidisciplinary approach, and a good follow up care are essential for excellent outcome.

Keywords: Huge, Plexiform, Neurofibroma, Thigh

INTRODUCTION

Neurofibromas are benign tumours of peripheral nerve sheath origin, with varied pattern of growth which include: localized cuteneous neurofibromas, diffuse neurofibromas, and plexiform neurofibromas.[1,2] These tumours may arise either as a solitary mass (if sporadic), or as multiple lesions associated with neurofibromatosis.[1] Neurofibromatosis is a genetic disorder with an autosomal-dominant pattern of inheritance.[3] There are two main types: neurofibromatosis type 1 (NF-1), also known as von Recklinghausen's disease, and neurofibromatosis type 2.[3] Neurofibromatosis type 1 is the commonest form of neurofibromatosis with a worldwide incidence of 1 in 3000.[4] Reports of this disease are relatively rare in Africans.[5] Neurofibromatosis type 1 results from the inheritance of a mutant form of NF1 gene which is located on the long arm of chromosome 17 (17q11.2).[1,2,11] The characteristic manifestation of NF-1 is the development of multiple benign (noncancerous) tumours of nerves and skin (neurofibromas), and cutaneous hyperpigmented macules (café au lait spots).[1,6]

In this report, we present a case of neurofibromatosis type 1 with a huge right thigh plexiform neurofibroma.

CASE REPORT

The patient is a 25-year-old Fulani man who presented to the plastic and burns unit clinic of the Jos University Teaching Hospital with a 20-year history of right lower limb swelling, deformity of the back of 10 years duration, and multiple body growths of 10 years duration. Symptoms were said to have started when patient was a child. A swelling was noticed on the posterior aspect of the right thigh, which increased remarkably in size gradually over 20 years. There was no associated pain or change in the skin overlying the mass. The size and location of the mass impairs patient from lying on his back and over time led to difficulty with weight bearing and deformity of the back 10 years prior to presentation. This made him unable to walk without support. He also started having multiple body growths on his head, neck, trunk, and limbs which he noticed about

10 years prior to presentation. There was no family history of similar swelling or body growths.

Examination revealed a young man, who was not pale, afebrile (37^0C), anicteric, acyanosed, well hydrated, and he had no pedal oedema. His pulse rate was 80 beats per minute, of normal volume and regular. His blood pressure was 110/80mmHg. Heart sounds 1 and 2 were heard. His respiratory rate was 20 cycles per minute, and he had vesicular breath sounds. His abdomen was full and moved with respiration. There was no area of tenderness. The liver, spleen and kidneys were not palpably enlarged. Musculoskeletal system examination revealed multiple nodular lesions on his face, trunk and limbs, with hyperpigmented patches and café au lait spots on the trunk. Thoracolumbar kyphosis with lumbosacral flexion deformity was also noted. Clinical examination of the right lower limb revealed a huge extensive plexiform mass extending from the gluteal region to the ankle, with hyperpigmentation and scarification of the overlying skin. The mass was seen hanging loosely over the limb, with multiple infolding. The mass was firm and mobile, and non-tender. There was no inguinal lymphadenopathy.

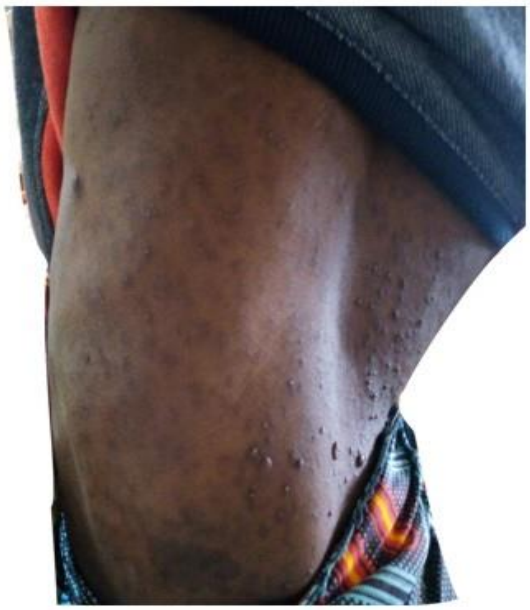

Figure 1. Photograph showing hyperpigmented skin patch with multiple café au lait spots and neurofibromas.

Investigations done included a full blood count, random blood glucose, and serum chemistry all of which were within normal reference range. Thoracolumbar spine radiograph was done and revealed scoliosis of the thoracic and lumbar

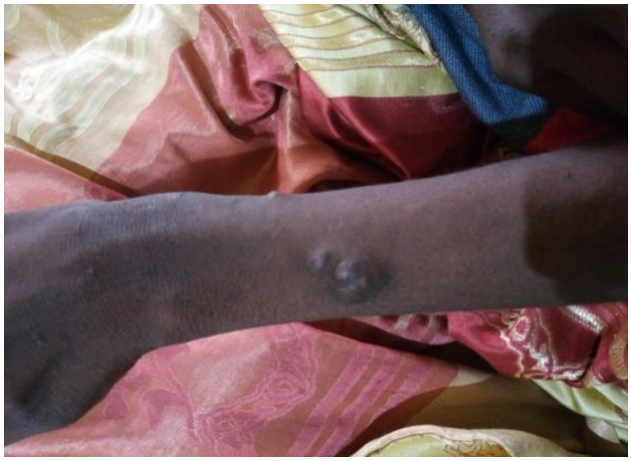

Figure 2. Photograph showing lesions on the left forearm.

spine with concavity to the right and left respectively. Anterior shift of L4 over L5 of about 25% was also noted. The plain radiograph features were suggestive of neurofibromatosis. A debulking surgery of the right lower limb mass was done.

On gross examination, multiple irregular masses consisting of greyish white fibrous tissue with overlying negroid skin were seen. The largest tissue measured 24 x 23 x 12cm. Altogether, the tissues weighed 5kg. Serial sections showed greyish white solid surface.

Figure 3. Gross photograph showing multiple masses with tan-white cut section excised from the right thigh.

The microscopic examination showed a keratinized stratified squamous epithelium overlying a fibrous dermis within which is an unencapsulated mass composed of serpentine Schwannian cells in nodules and intermixed with fibrous tissue and myxoid areas. No atypical cell or mitosis was seen.

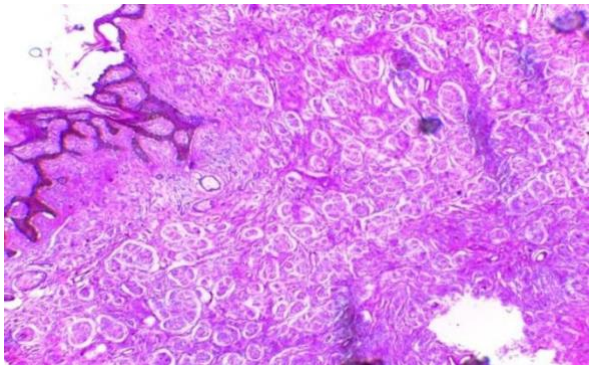

Figure 4. Photomicrograph (H & E) from the thigh showing epidermis overlying dermis with nodules of Schwannian cells intermixed with fibrous tissue (x 4 objective),

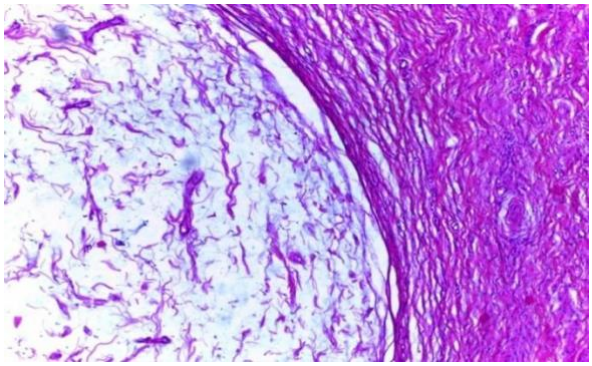

Figure 5. Photomicrograph (H & E) from the thigh showing a hypocellular proliferation of bland serpentine spindle cells and shredded carrot collagen (seen in neurofibroma) (x 10 objective).

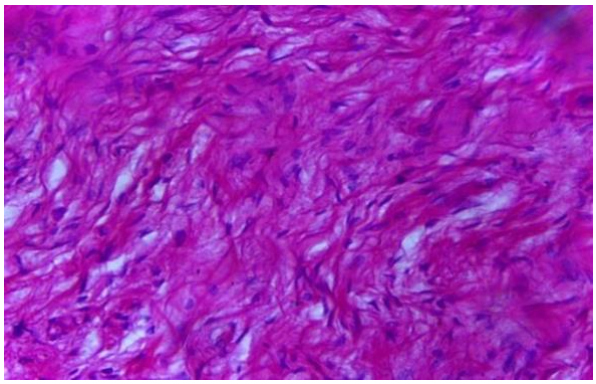

Figure 6. Photomicrograph (H & E) from the thigh showing a hypocellular proliferation of bland spindle cells with interspersed collagen (x 40 objective).

From the gross and microscopic findings, a histopathologic diagnosis of plexiform neurofibroma was made, and a final diagnosis of neurofibromatosis type 1 was rendered based on the clinical, radiologic, and histopathologic features.

DISCUSSION

NF-1 is a multisystem disease associated with a variety of tumours and nonneoplastic manifestations.[1] The disorder was first recognized by Dr Mark Akenside in 1768. Although further details on the disease were published by the Irish surgeon Robert Smith in 1849, it was the German pathologist Friedrich Daniel Von Recklinghausen who first gave a precise description of the diverse findings as a single entity in 1882; hence, the condition is often referred to as Von Recklinghausen's disease.[2,10] The diagnosis of (NF-1) is established if 2 or more of the following 7 components are present: ≥ 6 café au lait patches > 0.5 cm in prepubertal individuals or > 1.5 cm in post pubertal individuals; ≥ 2 neurofibromas of any type or 1 plexiform neurofibroma; axillary or inguinal freckling; ≥ 2 Lisch nodules; optic glioma; sphenoid dysplasia or thinning of long bone cortex with or without pseudoarthrosis; first degree relative diagnosed with neurofibromatosis type 1.[9] In the index case, the patient presented with a huge right lower limb mass, which was confirmed histologically to be a plexiform neurofibroma. He also had multiple cutaneous neurofibromas, numerous café au lait patches and axillary freckling. Radiological studies also showed multiple skeletal abnormalities including thoracolumbar scoliosis.

Neurofibromatosis type 1 is associated with the development of neurofibromas of all types.[1] Of particular interest is the plexiform variant which is known to have a significant potential of malignant transformation to malignant peripheral nerve sheath tumour (MPNST).[2] This variant as well as the other variants were seen in our patient. Patients with NF-1 are also at risk of developing other tumours including optic gliomas, leukaemia, pheochromocytomas, and hamartomatous lesion.[1,2,7]

Nonneoplastic manifestations are also seen with NF-1. Some of these manifestations include mental retardation, seizures, pigmented nodules of the iris (Lisch nodules), skeletal defects, and café au lait patches.[1,2] Café au lait patches which present as well-defined hyperpigmented macular lesions, are usually the first recognizable clinical manifestation of the disease.[2] These lesions increase in amount with age.[6] They constitute an important component of the diagnostic criteria of NF-1, and are usually present by the second year of life.[2] Axillary and inguinal freckles may be seen in association with café au lait macules, and are usually present by the age of 5 to 8 years.[2] These freckles may also be found in areas where skin folds are in apposition such as under the breasts in women, and are important diagnostic clues.[2]

Genetic counselling is important for NF-1 patients. These patients should be aware that the disorder shows autosomal dominant pattern of inheritance and their offspring have a high chance (up to 50%) of inheriting the mutant NF1 gene.[7] The importance of a multidisciplinary approach to

management should be emphasized. Long term follow up is necessary because of the risk of development of malignancies and other local complications. The patient presented here was referred to a genetic counsellor. He did not respond to our calls for following up on his treatment.

CONCLUSION

Neurofibromas presents with lesions that could develop over time into huge masses, leading to mass effect with significant morbidity. Early diagnosis, prompt treatment via a multidisciplinary approach, and a good follow up care are essential for excellent outcome.

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