ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 11, Issue, 09, pp.7376-7378, September, 2019

DOI: https://doi.org/10.24941/ijcr.36742.09.2019

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

MALIGNANT TUMOR OF THE GIANT NERVOUS SHEATH COMPLICATING THE VON RECKLINGHAUSEN DISEASE

***Tovo Harivony, Razakanaivo, M., Razanadahy, T., TikaLovasoa and Rafaramino, F.**

Department of Oncology, Joseph Ravoahangy Andrianavalona University Hospital center, Antananarivo, Madagascar

ARTICLE INFO

Article History:
Received 17th June, 2019
Received in revised form
28th July, 2019
Accepted 25th August, 2019
Published online 30st September, 2019

Key Words:
Neurofibromatosis
Type 1 - Malignant Tumor of the Peripheric Sheath,
Softt issue Sarcomas, Surgery.

ABSTRACT

Introduction: Neurofibromatosis Type 1 (NF1) is a multi-organ disorder of genetic origin, transmitted through the autosomal dominant modality. Peripheral nervous sheath malignant tumors (PNSMT) are rare highly aggressive soft tissue sarcomas, they represent 5-10% of soft tissue sarcomas (2) and are the main complication of NF1. We report in this article a giant PNSMT observation complicating a NF1. **Observation reported**: This is a 50 years-old woman with cutaneous neurofibroma since adolescence and no other specific antecedent. Plexiform neurofibroma of the left flank increased rapidly in size, becoming ulcero-necrotic and inflammatory, and malodorous. The examination showed coffee-milk and cutaneous neurofibromas on almost the whole body, pleoform neurofibromas in the occiput, vertex and vulva, and budding, whitish, ulcero-necrotic, pedicled, hemorrhagic, 210mmx170mm at the left flank. In the back of the eye, nodules of Lish were present. The biopsy of the giant tumor was in favor of aMPNST. Chest x-ray and abdominal and pelvic ultrasound were normal. The patient died before the surgery.

Citation: Tovo Harivony, Razakanaivo, M., NO Andrianandrasana, Randriamalala, R., Ramboamampianina, O and Rafaramino, F. **2019.** "Malignant tumor of the giant nervous sheath complicating the Von Recklinghausen disease", *International Journal of Current Research*, 11, (09), 7376-7378.

INTRODUCTION

Neurofibromatosis type1 (NF1) or Von Recklinghausen disease is an autosomal dominant disorder with variable clinical expression. Malignant transformation is rare and aggressive. Peripheral nerve sheath malignancies (MPNST) are rare highly aggressive soft tissue sarcomas, they account for 5-10% of soft tissue sarcomas (2) and are the main complication of neurofibromatosis type 1 (NF1) to adult age with an incidence of 8 to 13% (1). They derive from the cells that make up the sheaths of the peripheral nerves. The other MPNST are either radio-induced or solitary, still called de novo. Because of their rarity, these tumors pose both diagnostic and therapeutic problems. We report in this article a giant MPNST observation complicating an NF1.

Observation: R.S, is a 50 years-old woman with Von Recklinghausen's disease with no similar family history. She was not followed by a doctor for this pathology. The patient had left-sided swelling developing at the expense of a plexiform neurofibroma , rapidly increasing in volume, progressing to ulceration within a month. The patient complained of radicular pain in the lower left limb. On examination, the patient has coffee-milk stains almost all over the body, accentuated at the level of the trunk and back. She had numerous cutaneous and subcutaneous neurofibromas; pleoform neurofibromas in the neck and vulvar area. The tumor of the left flank is superficial, ulcero-necrotizing, and mobile in relation to the deep plane, pedunculated, spherical, measuring 21 cm in diameter and smelly (Figure 1). A biopsy of the mass was performed, the result of which was in favor of a MPNST (Image 1). The fundus showed about 6 nodules of Lisch on the left and 4 on the right. For financial reasons, an MRI of the giant tumor could not be performed. For the same reason, only a chest X-ray and an abdominal and pelvic ultrasound were performed to assess the general extension of the tumor which showed no secondary localization. She was scheduled for an excisional surgery but she died two days before the intervention of a sudden death on probable undiagnosed cardiovascular malformation.

****Corresponding author:*** **Tovo Harivony,**
Department of Oncology, Joseph Ravoahangy Andrianavalona University Hospital center, Antananarivo, Madagascar.

DISCUSSION

Malignant peripheral nerve sheath tumors (MPNSTs) are defined by the WHO 2013 classification as developed malignant neoplasms (De Vita, 2011): either from a peripheral nerve; either a benign tumor of the sheaths of the nerves; or in a patient with neurofibromatosis type 1 (NF1). These are rare tumors, the incidence in the general population is 0.001% and increases to 5 - 10% in patients with NF1 (Beer, 2012). These tumors occur in 50% of cases in patients with NF1, in 40% of cases in a sporadic mode and only 10% are radiation-induced (Beer, 2012).

Figure 1. 21 cm tumor on the left side of the back

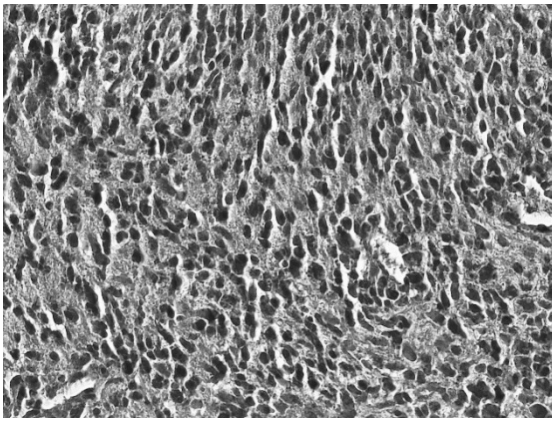

Image 1. Peripheral nervous sheath malignant tumor. Optic microscopy

These are typically tumors of the young adult, aged 20 to 50 years (Bilgic, 2003; Soualhi, 2004). The sex ratio is close to 1 with a slight female predominance (Stark, 2001). They develop mainly in the roots of the limbs and trunk (sciatic nerve, brachial plexus and sacral plexus) more rarely in the head and neck (Bilgic, 2003). Thirty to forty percent of MPNST result from the transformation of a plexiform neurofibroma especially in its giant, multiple and extensive form, this imposes a strict and prolonged monitoring of patients with NF1. Plexiform neurofibroma s are present in 30 to 50% of NF1 and can degenerate into nerve sheath in malignant tumors in 10 to 15% (Minovi, 2007; Upadhyaya, 2008). It is currently established that it is the NF1 gene (located on the long arm of chromosome 17) and encoding the protein "neurofibromin" which is involved in the genesis of MPNST (Charfeddine, 2008). The appearance of spontaneous pain and neurological deficiency are fearing malignancy. Just as the abrupt growth of a known and stable neurofibroma in a patient with NF1 should make the diagnosis (Stark, 2001).

Imaging studies have a twofold objective: to distinguish between MPNST and benign tumors and to specify the local and general extension of these tumors. MRI is the exam for the characterization of MPNST and the 4 criteria that point to an MPNST rather than a neurofibroma are (Wasa, 2001): a size ≥ 5 cm; peripheral enhancement; perilesional oedematous zones; and intra-tumor cystic areas (haemorrhage or necrosis).

If 2 to 4 of the above criteria are present: high probability of malignancy (specificity 90%, sensitivity 61%); for patients with NF1: a heterogeneity in T1 is also in favor of a malignant lesion. The definitive diagnosis of MPNST is histology. Macroscopically, they are in the form of a fusiform mass encompassing a nerve. In general they measure more than 5 cm and are whitish in color with areas of necrosis and haemorrhage. The histological aspect is very heterogeneous because the cells have varying degrees of schwan aspect, fibroblastic or perineurial differentiation (Stark, 2001). The criteria for malignancy include invasion of neighboring structures, vascular emboli, nuclear pleomorphism, necrosis and the presence of mitoses (Charfeddine, 2008). The grading system recommended by the FNCLCC is based on three parameters: cell differentiation, necrosis and the number of mitoses (Collin, 2006). In immunohistochemistry, there are no specific markers of MPNST, but several markers are often used to differentiate these tumors from other differential diagnostics (melanoma, fibrosarcoma, monophasic synovialosarcoma, leiomyosarcoma or more rarely neurofibroma and cell schwanoma) (Beer, 2012). The most frequently used markers are the S100 protein which is positive in 50% of cases (but only in a focal manner), Leu-7 which is positive in 50% of cases, the basic myelin protein which is positive in 50% of cases while HMB45 and cytokeratin are negative (Beer, 2012). Support is not coded. Surgery remains the standard treatment for MPNST (Beer, 2012). It is essential to perform an excision of the entire lesion with healthy resection margins to avoid local recurrence. Neo-adjuvant or adjuvant radiotherapy improves local control and decreases the risk of recurrence but does not appear to have an effect on overall survival (Beer, 2012). Adjuvant radiotherapy is indicated in high-grade MPNST or when surgical limits are invaded (Bilgic, 2003). For Madhabanda Kar (Kar, 2006), large or deep tumors are also an indication for adjuvant radiotherapy. Chemotherapy does not seem to improve survival (Beer, 2012). It is often performed in patients with bulky tumors considered to be inextirpable andfor metastatic patients. The general evolution depends on the size of the tumor, its location, its histological grade, the association or not with NF1 and the possibility and quality of the first resection (Charfeddine, 2008). In all cases, the prognosis is poor with an overall survival at 5 years of 25% in case of NF1 and 50% in case of isolated tumor (Bilgic, 2003). The risk of local recurrence is 40 to 65% (Malone, 2005). Metastases are haematogenous or follow the path of nerve sheaths. Distant metastases are localized to the lungs, liver and bones. They appear within an average of two years, which is shorter as long as there is an NF1 (Soualhi, 2004; Topal, 2004).

Conclusion

MPNST are rare tumors that represent the main complication of NF1, hence the importance of close surveillance in these patients. The abrupt growth of a known and stable neurofibroma in a patient with NF1 should be suggestive of the diagnosis. MRI is the sensitive imaging. The diagnosis of certainty is histology. Surgery remains the reference treatment and the quality of the first resection is a determining prognostic factor. The prognosis remains pejorative.

REFERENCES

Beer, Timothy C. 2012. Malignant Peripheral Nerve Sheath Tumor (MPNST): an overview with emphasis on pathology imaging and management strategies.

Bilgic, B., Ates LE., Demiryont M., Ozger H., Dizdar Y. 2003. Malignant peripheral nerves heath tumors associated with neurofibromatosis type1. *Pathol Oncol Res.,* 9(3):201-5.

Charfeddine I et al. 2008. Tumeur maligne des gaines nerveuses périphériques révélant une neurofibromatose type 1. Journal Tunisien d'ORL et de Chirurgie Cervico-Faciale.20:1.

Collin F., Gelly-Marty M. 2006. Sarcomes des tissus mous : données anatomopathologiques actuelles. Cancer/Radiothérapie.10:7-14.

De Vita VT., Lawrence TS., Rosenberg SA. 2011. De Vita, Hellman, and Rosenberg's Cancer: Principles and Practice of Oncology. 9th ed. Philadelphia: Wolters Kluwers Publication.

Kar M., Deo SV., Shukla NK. et al. 2006. Malignant peripheral nerve sheath tumors (MPNST) - clinicopathological study and treatment outcome of twenty-four cases. *World J Surg Oncol*., 22(4):55.

Malone JP., Lee WJ., Levin RJ. 2005. Clinical characteristics and treatment out come for non vestibularschwannomas of the head and neck. *Am J Otolaryngol*., 26(2):108-12.

Minovi A., Basten O., Hunter B., Draf W., Bockmühl U. 2007. Malignant peripheral nerves heath tumor softhe head and neck: management of 10 cases and literature review. Head Neck. 29(5):439-45.

Soualhi M., Elouazani H., Chaibainou A., Bouchantouf R. 2004. Tumeur maligne des gaines des nerfs périphériques type épithélioide. *Rev.Pneumol. Clin.,* 60: 50-54.

Stark AM., Buhl R., Hugo HH., Mehdorn HM. 2001. Malignant peripheral nerve sheath tumours – Report of 8 cases and review of the literature. *Acta Neurochir* (Wien) 143:357-63.

Topal O., Yilmaz T., Oğretmenoğlu O. 2004. Giant malignant peripheral nerve sheath tumor of the neck in a patient with neurofibromatosis-1. *Int J Pediatr Otorhinolaryngol*., 68(11):1465-7.

Upadhyaya M., Spurlock G., Monem B., Thomas N., Friedrich RE., Kluwe L., Mautner V. 2008. Germline and somatic NF1gene mutations in plexiform neurofibroma s. *Hum Mutat.,* Vol.16.

Wasa, Junji et al., MRI features in the differentiation of malignant peripheral nerve sheath tumors and neurofibromas. *American Journal of Roentgenology*.

****