COEXISTENCE OF LEPROSY AND MENINGIOMAS

Özturk S¹*, Özturk T², Erden I³, Ucak H⁴, Can I¹
1. Department of Dermatology, Medical Faculty, Balikesir University, Balikesir, Turkey
2. Radiology Department, Elazig Training and Research Hospital, Elazig, Turkey
3. Dermatology and Leprosy Department, Elazig Training and Research Hospital, Elazig, Turkey
4. Dermatology Department, Dicle University Medical Faculty, Diyarbakir, Turkey

Correspondence: Dr. Savaş Özturk. Department of Dermatology, Medical Faculty, Balikesir University, Balikesir, Turkey
Email: drssozturk@gmail.com


ABSTRACT

Leprosy is a chronic infection, caused by mycobacterium leprae, primarily affecting the peripheral nerve trunks and cutaneous nerves. Though leprosy affects mainly the skins and peripheral nerves, almost all organs can be involved. Meningiomas are the third common intracranial tumors which comprise approximately 14% to 20% of all intracranial tumors. Granulomatous diseases and leprosy are not seen as risk factors for meningiomas in the literature. In the past, only one patient is presented leprosy with meningioma. In this paper, we present three patients with leprosy and meningiomas.

Key words: Leprosy, meningiomas, MRI

INTRODUCTION

Leprosy is a chronic infectious disease caused by Mycobacterium leprae that affects almost 250,000 people worldwide¹. Meningiomas are the most common primary brain tumors² - ³. Hospital-based series have found ~20% of all primary brain tumors to be meningiomas, whereas autopsy reports are closer to 30%⁴ - ⁵. Exposure to ionizing radiation is the strongest risk factor seen in the literature for meningiomas. Data on other risk factors are cell phone use, occupational lead exposures, cigarette smoking, diabetes, hypertension, and head trauma, increasing age and female gender², ⁶. There has been conflicting data on the influence of endogenous or exogenous hormones affecting the risk for meningiomas. Genetic and familial factors play a role in the risk for meningiomas⁷ - ⁸.
CASE REPORT

Case 1:

74-year-old male patient who has had headache and dizziness for a year and who was followed because of inactive leprosy was evaluated. The patient was being followed about for 24 years to rehabilitate inactive leprosy. In his medical record and family history, there was no other feature. He didn’t smoke. In his Magnetic resonance imaging (MRI) examination, 2 concurrent meningiomas were found. MRI showed a 3.5x1.5 cm extra-axial round-shaped mass in the left temporal lobe that showed isointensity on T1-weighted imaging, hyperintensity on T2-weighted imaging and hyperintensity on Diffusion-weighted MR imaging. This was homogeneously enhanced with Gadolinium Diethylenetriaminepenta-Acetic Acid (Gd-DTPA) with the dural tail sign. Additionally, another 1.5x1 cm mass lesion was detected in the right frontal convexity. The signal intensity of the tumor was isointense on both T1- and T2-weighted images. There was no surrounding edema. Intravenous administration of contrast material resulted in homogeneous enhancement of the mass and a dural tail sign are observed (Figure 1). The treatment was not planned since the patient was very old and there were not clinical and neurological symptoms.

Figure 1. Post contrast axial T1 weighted MR showing a diffusely, homogeneous enhancement and dural enhancement typical of meningiomas.
Case 2:

67-year-old male patient. MRI done because of occasional headache complaints continuing for 3 years was examined. The patient was being followed for 32 years to rehabilitate inactive leprosy. In his medical record and family history, there was no other feature. He didn’t smoke. On MRI, a 1.5 x 1.5 cm left frontal convexity meningioma was detected. Axial T2-weighted-MR image demonstrated a hypointense left frontal meningioma. Mass was isointense to cerebral parenchyma on T1-weighted sequences. On MRI, this mass was homogeneously enhanced with "dural tail sign (Figure 2). The treatment was not planned since the patient was very old and there were not clinical and neurological symptoms.

Figure 2. Axial FLAIR MR image demonstrating a well-marginated extraaxial hyperintense left frontal meningioma.
Case 3:

72-year-old female patient. Cranial and servical MRI done for headache, neck pain and shoulder ache that continued for 6 months was examined. The patient was being followed for 25 years to rehabilitate inactive leprosy. Magnetic resonance imaging revealed a Th-1 throcal intradural extramedullary mass that was isointense to spinal cord on T1- and T2-weighted sequences. On MRI, this mass was homogeneously enhanced with "dural tail sign. The spinal cord was severely compressed and displaced (Figure 3). The patient was operated because she had weakness and pain, and histopathological examination of the mass was compatible with meningioma.

Figure 3. Post contrast fat suppressed axial T1 weighted MR showing a diffusely, homogeneous enhancement and dural enhancement typical of meningiomas. The spinal cord is markedly displaced and flattened.
DISCUSSION

*M. leprae* that affects central nervous system (CNS) is unknown. In a study of the 44 cases of 67 leprosy patients had vacuolar changes of motor neurons either in medulla oblongata (nucleus ambiguous or hypoglossal nucleus) or spinal cord. This study provides significant additional evidence to indicate that *M. leprae* is present in the CNS in a subset of patients.

Meningiomas account for 30% of all primary brain tumor diagnoses in adults in the USA. The overall age-adjusted incidence rate is 4.52 per 100,000. Although age-adjusted incidence rates are reportedly similar across racial groups, the incidence in women is approximately twice that in men. Meningiomas are easily diagnosed by MRI, and most are asymptomatic. Meningiomas show characteristic findings on conventional MRI; thus their differentiation from intraaxial tumors is easy with typical features. The vast majority of meningiomas are considered histologically benign (92.8%); only 2.2% are defined as uncertain or atypical, and 5% as malignant. Although meningiomas are the most common tumor in the central nervous system, their incidence, epidemiology, and clinical outcomes have historically been poorly defined. In addition to increasing age, the most consistent factor associated with risk of meningioma is exposure to ionizing radiation; many other environmental, lifestyle and genetic risk factors have been studied with inconclusive results. Some of the factors that have been studied are endogenous and exogenous hormone use, cell phone use, and genetic variants or polymorphisms. Other risk factors include diabetes, hypertension, and epilepsy, occupational lead exposure, personal hair dye use, cigarette smoking, head trauma and allergies. For most of these factors, either no significant association or inconsistent associations with meningioma risk have been reported. In reviewing the literature, mycobacterial diseases and leprosy were not among the risk factors for the development of meningiomas. In the literature, there is only one case of meningioma with leprosy.

CONCLUSION

In this paper, we present three patients with leprosy and meningiomas. At the advanced age, our patients have risk factors for the development of meningioma. However, apart from the advanced age, we think that the leprosy disease may be a risk factor for the development of meningioma.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying image.

COMPETING INTERESTS

The authors declare that they have no competing interests.
REFERENCES