Extranodal Marginal Zone Lymphoma of the Parotid Gland

Sedat Aydın¹ · Mehmet Gökhan Demir¹ · Nagehan Özdemir Barışık²

Received: 21 July 2014 / Accepted: 5 February 2016 / Published online: 2 March 2016
© The Association of Oral and Maxillofacial Surgeons of India 2016

Abstract Non Hodgkin lymphomas correspond to 25 % of all head and neck cancers. These rare tumors only include less than 5 % of malign tumors in parotid region. Differential diagnosis of these tumors cover many malign and benign tumors of the parotid gland. Definite diagnosis depends on sufficient tissue material of parotidectomy specimen. Treatment modality is surgical removal of the lesion with or without additional radiation and chemotherapy depending on the stage of the tumor. Prognosis is better than other forms of the B-cell lymphoma. We present a 54 year old woman who suffered from progressively and slowly growing mass on parotid region, without any inflammatory disease or chronic infection, diagnosed with mucosa associated lymphoid tissue lymphoma of the parotid gland. Parotid gland was totally excised by superficial parotidectomy and there is no recurrence after 5 years postoperative period.

Keywords Parotid gland · Lymphoid neoplasm · Marginal zone lymphoma · Mucosa associated lymphoid tissue lymphoma

Introduction

Non Hodgkin lymphomas (NHL) involve 25 % of all head and neck carcinomas. Most of the tumors can be detected on pharynx, paranasal sinuses, nasal cavity, oral cavity, thyroid gland, central nervous system and salivary glands on the head and neck region. Primary salivary gland lymphomas include only 1.7–3.1 % of all salivary gland malignancies. Most of the lymphomas are B cell lymphoma of the NHL which correspond to only 5 % of all parotid gland tumors [1].

NHL can be detected on all salivary glands but majority of the tumors are seen on parotid gland. The most valuable method of diagnosing salivary gland masses is fine needle aspiration biopsy (FNAB) and pathologic investigation. But this method especially is not sufficient for parotid gland lymphomas. Ando et al. [2] emphasized that FNAB was not sufficient to diagnose mucosa associated lymphoid tissue lymphoma. Diagnostic difficulties and recurrent FNABs are always time consuming for the clinician and patient and because of this reason the treatment is delayed. For this reason, some authors intensely suggested surgical excision for diagnostic tool [3]. We present a parotid gland mucosa associated lymphoid tissue lymphoma (MAL-TOMA) for which we had diagnostic difficulties.

Case Report

A fifty-four year old woman presented to our Ear, Nose and Throat clinic with a complaint of 3 × 2 cm in diameter mass on the right parotid region which was progressively growing over the past 2 years. According to medical history, she did not have any significant disease. Physical examination revealed right sided parotid region mass

✉ Sedat Aydın
sedataydin63@yahoo.com

¹ ENT Department, Dr. Lutfi Kirdar Kartal Education and Research Hospital, İstasyon Caddesi Merdivenli Sokak No 5 D 6, 34860 Kartal-Istanbul, Turkey

² Pathology Department, Dr. Lutfi Kirdar Kartal Education and Research Hospital, Istanbul, Turkey

Fig. 1 Preoperative photo of the right sided parotid mass

which was settled and extended superiorly to zygomatic arc, anteriorly to masseter muscle, posteriorly to sternocleidomastoid muscle. The mass was soft, rubbery, 3×2 cm in diameter and semi-mobile on palpation (Fig. 1). Parotid gland ultrasonography examination revealed right sided $31 \times 15 \times 22$ mm in diameter septated parotid mass. On neck magnetic resonance imaging (MRI) examination right parotid gland hypertrophy and intraparenchymally located nodular region was detected. The suggested diagnosis was lymphoproliferative diseases (Fig. 2a, b). FNAB showed mature transformed lymphocytes and scarce histiocytes. After taking informed consent from the patient, parotidectomy was done (Fig. 3). After investigation of the specimen the diagnosis was MALTOMA of the parotid gland (CD20+; Fig. 4a–c). Subsequently patient consulted hematology clinic. Chemotherapy was given to the patient and on the 5 year follow up there is no recurrence and complaint.

Discussion

Parotid gland NHL generally presents as painless, slow growing mass on the parotid region clinically. Most of the parotid gland NHL are B-cell lymphomas. Primary salivary gland lymphomas are seen rarely and corresponded only to 5 % of all parotid gland malignities [4, 5]. For this reason, it is not suspected clinically before FNAB or parotidectomy. Primary salivary gland lymphomas show parenchymal involvement of the parotid gland without lymph node differentiation [6, 7]. Our case presented with slow growing, painless mass without symptom on the right parotid region.

Most of the lymphomas on the parotid region are MALTOMA of the NHL. According to medical history, MALTOMA is mostly related to chronic inflammatory processes such as Sjogren's Syndrome or any chronic

Fig. 2 a, b Right sided contrast enhanced mass lesion of the parotid gland on the neck MRI examination

Fig. 3 Preoperative view of the right sided mass diagnosed as MALTOMA

Fig. 4 **a, b, c** Fig. 4a asinus and ductal atrophy with intraepithelial lymphocyte infiltration is detected (HE, $\times 400$). Figure 4b reactive CD3 lymphocytes on the stroma [CD(+), $\times 200$]. Figure 4c ductal epithelial tissue and stromal CD20(+) lymphocytes [CD20(+), $\times 200$]

inflammation [8]. Rosenthal et al. [9] emphasized that Sjogren's syndrome provoked 44 times increased risk of lymphoma and 80 % of these lymphomas are MALTOMA. Klusmann et al. [10] suggested that MALTOMA was associated with Epstein-Barr virus (EBV), Human

herpesvirus (HHV) subtype 6 and 8, Hepatitis C virus (HCV), and human immunodeficiency virus (HIV) infections. In our case we have not detected any chronic infection or Sjogren's syndrome. Additionally, malign salivary gland lymphomas are mostly seen in patients over 50 years and are 2 times more common in females as in our case.

Diagnostical radiological investigation can be done for parotid MALTOMA but most of them reveal nondiagnostic findings. One of the most used method is computer tomography (CT) which shows nonspecific features such as hypoechoic solid nodules, calcification focuses with cystic lesions [11]. As is known, on soft tissue imaging, MRI investigation is the best imaging modality. MRI findings are also nonspecific and show hyperintense lesions on diffusion weighted investigation but can be helpful in differential diagnosis [12]. In our case we detected intraparenchymal solid nodules on the parotid region on MRI investigation. Another rarely used imaging modality is positron emission tomography (PET) which can be used for diagnosis, spread of the tumor and treatment [12].

Differential diagnosis of the MALTOMA includes many other types of the parotid gland tumors [2, 9]. Warthin's tumor, pleomorphic adenoma, adenoid cystic carcinoma, mucoepidermoid carcinoma and adenocarcinoma may all contain cystic parts. Also benign form of parotid gland tumors such as basal cell adenoma can lead to misdiagnosis. Diffusion weighted MRI can be even helpful to correct diagnosis by low contrast enhancing capacity on both solid and cystic parts of the tumor. Additionally Warthin's tumor can be distinguished by characteristic FNAB which is unidentified in MALTOMA. Also bilateral involving capacity and bilateral contrast enhanced hyperintense multifocal mass lesion on the T1 weighted MRI images are other characteristic features of the Warthin's tumors. Pleomorphic adenomas generally are settled on the superficial lobe of the parotid gland and can be diagnosed by FNAB with characteristic stromal, epithelial and myoepithelial cell components. Adenoid cystic carcinomas are differentiated from MALTOMA with small tumor cells showing prominent and irregular shaped nuclei with perineural invasion, angiolymphatic invasion and necrosis on the FNAB histologically. Mucoepidermoid carcinomas which are the most common malignant tumors of the parotid gland, pathologically have varying proportions of mucous, intermediate, and epidermoid cells exhibiting cytologic atypia, higher mitotic frequency, areas of necrosis. These features do not exist in MALTOMA. Adenocarcinomas also have characteristic glandular pathological features that can be easily distinguished from MALTOMA [13].

Pathologic investigation is the gold standard method for parotid gland MALTOMA. This investigation needs pathological sampling such as FNAB, excisional or

incisional biopsy. FNAB is a reliable method for diagnoses of the salivary gland masses. But this method, like other lymphomas, is sometimes not sufficient for the diagnosis. Ando et al. [2] reported that FNAB is not completely sufficient for MALTOMA. In our case we could not diagnose the mass with FNAB. The definite diagnosis can be done by parotidectomy material. So if lymphoma is suspected, we should not insist on repetition of non diagnostic FNABs.

Treatment of the MALTOMA is still controversial. Thieblemont et al. [14] suggested surgery and radiotherapy for localized disease. Histological diagnosis is very important for the treatment process so surgery must be done for diagnostic tool [15]. For this reason parotidectomy gives us sufficient diagnostic tool and treatment process. After the MALTOMA diagnosis, disease distribution is important for course of treatment. At this time PET-CT investigation can be done to assess the magnitude of the disease. Many investigations support the importance of the PET findings to diagnose and follow up MALTOMA. But PET uptake of the tumor can be changed according the primary location [16, 17]. Surgical removal of the tumor depends on the location of the parotid mass. If the lesion is located on the superficial lobe, superficial parotidectomy is beneficial and enough for diagnosis. MALTOMA located on the deep lobe should be excised by total parotidectomy for diagnosis and treatment. After surgical removal of the mass, radiotherapy and chemotherapy can be applied according to the stage of the disease. A dose of 24 Gy for low grade MALTOMA and a dose of 30 Gy radiation therapy is recommended for high grade cases after completion of chemotherapy [18]. Sarris et al. [15] suggested radiotherapy for early stage lesion and chemotherapy for late onset disease. Marioni et al. [18] emphasized that incomplete surgical removal or disseminated cases should be treated with radiotherapy and chemotherapy. In our case first we applied superficial parotidectomy and after the definite diagnosis was clearly found the patient was referred to hematology clinic. Patient received chemotherapy and her disease has been on remission since 5 years. We think that surgery and chemotherapy should be assessed as a whole and if necessary radiotherapy should be added for residual and high grade lesions.

Conclusion

Primary malign lymphomas are rarely seen on the parotid gland. Most of them present with painless slow growing mass on the parotid region. FNAB is especially sufficient for parotid gland masses except for MALTOMA. When FNAB is not diagnostic we should keep in mind the NHL especially the MALTOMA and not insist on another

FNABs. After diagnosis the tumor should be resected completely and according to the stage of the tumor radiotherapy and chemotherapy should be applied.

Compliance with ethical standards

Conflict of interest All the authors declare that they have no conflict of interest.

Human and animal rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from participant included in the study.

References

1. Cho G, Suh IS, Tak KS, Park YK, Ko EY, Sung HM et al (2010) Primary parotid non-Hodgkin's lymphoma: case report. *J Korean Cleft Palate-Craniofac Assoc* 11:99–102
2. Ando M, Matsuzaki M, Murofushi T (2005) Mucosa-associated lymphoid tissue lymphoma presented as diffuse swelling of the parotid gland. *Am J Otolaryngol* 26(4):285–288
3. Sarris AH, Papadimitrakopoulou V, Dimopoulos MA, Smith T, Pugh W, Ha GS (1997) Primary parotid lymphoma: the effect of International Prognostic Index on outcome. *Leuk Lymphoma* 26:49–56
4. Roh JL, Huh J, Suh C (2008) Primary non Hodgkin's lymphoma of the major salivary glands. *J Surg Oncol* 97:35–39
5. Gleson MJ, Bennet MH, Cawson RA (1986) Lymphoma of salivary gland. *Cancer* 58:699–704
6. Dunn P, Kuo TT, Shih LY, Lin LT, Wang PN, Kuo MC et al (2004) Primary salivary gland lymphoma: clinico-pathologic study of 23 cases in Taiwan. *Acta Haematol* 112:203–208
7. Hyman GA, Wolff M (1976) Malignant lymphoma of the salivary gland. Review of literature and report of 33 new cases, including four cases associated with lymphoepithelial lesion. *Am J Clin Pathol* 65:421–428
8. Schmid U, Helboon D, Lennert K (1982) Development of malignant lymphoma in myoepithelial sialadenitis (Sjogren's syndrome). *Virchows Archiv A Pathol Anal Histol* 395(1):11–14
9. Rosenstiel DB, Carrol WR, Listinsky CM (2001) MALT lymphoma presenting as a cystic salivary gland mass. *Head Neck* 23:254–258
10. Klusmann JP, Muller A, Wagner M, Guntinas-Lichius O, Jungehuelsing M, Sloots T, Ablashi DV, Krueger GR (2000) Human herpesvirus type 8 in salivary gland tumors. *J Clin Virol* 16(3):239–246
11. Corr P, Vaithilingum M, Thejpal R et al (1997) Parotid MALT lymphoma in HIV infected children. *J Ultrasound Med* 16:615–617
12. Kato H, Kanematsu M, Goto H, Mizuta K, Aoki M, Kuze B, Hirose Y (2012) Mucosa-associated lymphoid tissue lymphoma of the salivary glands: MR imaging findings including diffusion-weighted imaging. *Eur J Radiol* 81:612–617
13. Beasley MJ (2012) Lymphoma of the thyroid and head and neck. *Clin Oncol* 24:345–351
14. Thieblemont C, Bastion Y, Berger F et al (1997) Mucosa-associated lymphoid tissue gastrointestinal and nongastrointestinal

- lymphoma behavior. Analysis of 108 patients. *J Clin Oncol* 15:1624–1630
15. Sarris AH, Papadimitrakopoulou V, Dimopoulos MA, Smith T, Pugh W, Ha GD (1997) Primary parotid lymphoma: the effect of international prognostic index on outcome. *Leuk Lymphoma* 26:49–56
 16. Hoffmann M, Kletter K, Becherer A, Jager U, Chott A, Raderer M (2003) 18Ffluorodeoxyglucose positron emission tomography (18F-FDG-PET) for staging and follow-up of marginal zone B-cell lymphoma. *Oncology* 64:336–340
 17. Perry C, Herishanu Y, Metzger U, Bairey O, Ruchlemer R, Trejo L, Naparstek E, Sapir EE, Polliack A (2007) Diagnostic accuracy of PET/CT in patients with extranodal marginal zone MALT lymphoma. *Eur J Haematol* 79(3):205–209
 18. Lowry L, Smith P, Qian W et al (2011) Reduced dose radiotherapy for local control in non-Hodgkin's lymphoma: a randomised phase III trial. *Radiother Oncol* 100:86–92