EDITORIAL

Perspective: Lacrimal gland biopsy, is it important?

Recent research work on the anatomy and histopathology of the human lacrimal gland has led to our better understanding of the lacrimal function and the diseases process that affects it. Further understanding has come from realizing the age related changes and the differences inferred by gender of the patient (Obata, 2006).

The human lacrimal gland consists of the main lacrimal gland and the accessory lacrimal gland. The main lacrimal gland comprises palpebral and orbital lobes, which are continuous with each other at the lateral edge of the aponeurosis of levator palpebrae oris. The orbital lobe is approximately twice as large as the palpebral lobe and lies in the lacrimal fossa on the anterior lateral area of the orbit. The palpebral lobe lies below the aponeurosis of levator palpebrae superioris and is in contact with the superior and lateral fornix of conjunctiva. Excretory ducts emerging from the palpebral and orbital lobes open into the superior conjunctival fornix. The size of the main lacrimal gland varies individually to some degree depending on the age of the patient.

Changes in lacrimal gland in various diseases process are common. An infectious process of the lacrimal gland may be commonly due to viral etiology preceded by exposure to an infected contact. Patient may present with signs of acute inflammation in the form of pain, tenderness, and redness. Local swelling over the eyelid may result in mechanical ptosis. The conjunctiva may show severe chemosis and bloody tears. The infection can be bilateral, with constitutional symptoms of malaise, pre-auricular and cervical lymphadenopathy, and can be associated with other organ involvement such as parotitis. Compared to the viral etiology, bacterial or foreign-body-related lacrimal gland disease process may need more intervention. Like many other diseases, the spectrum of the lacrimal gland conditions, has expanded with the advances in immunohistochemistry, immunocytochemical phenotyping and molecular genetics. After excluding the above cited typical infectious lacrimal conditions, any patient with lacrimal gland process may present with an unknown cause and relatively unpredictable course.

Because of the diversity of the lacrimal gland disorders, the tendency to get its tissue diagnosis is encouraged for benign as well as malignant tumors. In addition, lacrimal gland biopsy may be beneficial for the noninfectious inflammatory adenitis that may be potentially the first clinical presentation of a specific systemic disorder. Specific diseases with inflammatory presentation that may respond to corticosteroid are important for diagnosis before treatment initiation. For example, sarcoidosis (with non-caseating granuloma) can be a diagnostic dilemma without a tissue diagnosis, although the treatment of choice is also with corticosteroids which may not be good for fungal, or tuberculous granulomas. These conditions can be best verified only by biopsy.

The presence of uveitis may be more in favor of biopsy, however it is absence should not preclude getting a tissue diagnosis for the knowledge of what one may be dealing with. The literature on failed treatment of some cases of idiopathic orbital inflammation using corticosteroids indicates that an individual case may not conform to the prior experience of the physician or to that in published literature (Harris, 2006). For example, a condition that is now a new entity is the disease of the sclerosing lacrimal gland adenitis (Cheuk et al., 2007) which was previously considered as part of the idiopathic orbital inflammation (IOI) category (Rootman, 2005). It is now a known part of a systemic autoimmune disorder known as IgG4-related sclerosing disease, of which the prototypic lesion is lymphoplasmacytic sclerosing (autoimmune) pancreatitis (Okazaki et al., 2006). Typically, sclerosing (autoimmune) pancreatitis manifests with tumor like picture of the pancreas that can be thought of as carcinoma of the head of the pancreas sometimes (Weber et al., 2003). IgG4-related sclerosing disease is a known entity (Toomey et al., 2007). It often affects more than one organ system, and usually showing good response to corticosteroid therapy. The reported sites of involvement are the pancreas (prototype), biliary tract, gall bladder, liver, salivary gland, retroperitoneum, kidney, breast, lung, thyroid, prostate, and lymph nodes. The spectrum of organs involved by IgG4-related sclerosing disease includes the lacrimal gland. The histological pattern is distinctive, in that marked fibrosis is present from the outset, not as the burned-out end-stage of a cellular infiltrate of idiopathic IOI, which is a late manifestation of a localized condition of the orbit of unknown cause.
Of importance is the fact that the response to corticosteroids is not specific to benign inflammatory conditions, it can occur with aggressive malignancies presenting with inflammatory signs. For example, lymphomas do respond to corticosteroids and it should be suspected in the bilateral cases of lacrimal gland involvement. Further, lymphomas can present concomitantly with rheumatological conditions, including IgG4+ chronic sclerosing dacryoadenitis (Cheuk et al., 2008).

In conclusion, knowing the above stated facts, it is justifiable to act in favor of lacrimal gland biopsy before initiating any concrete treatment. It is appropriate to do all other diagnostic blood and radiological tests including PET scans, which has become an established scanning tool in oncology in recent years. PET scan is now entering the field of clinical inflammatory and infectious diseases because the inflammatory cells take up large amount of glucose as a result of an increased metabolic rate (Bleeker-Rovers et al., 2004). These tools are valuable in showing the localization and the extent of the process, but they are limited by non-specificity. Atypical lacrimal gland process does need a tissue diagnosis.

Lacrimal gland biopsy from the accessible palpebral lobe lesions can be performed directly or after double upper lid eversion technique for exposure of the superolateral fornix. As in Sidle’s test, the use of undiluted flouricine dye, for identification of the lacrimal duct orifices as the tears egress out of it, can help to preserve those ducts for the tear secretion in the conjunctival sac. Anterolateral orbitotomy with or without bone opening is the best way to get an adequate lacrimal gland biopsy from the orbital lobe. One has to be sure to preserve the lacrimal gland artery which can be utilized for chemosurgery of conditions such as the lacrimal gland adenoid cystic carcinoma (Erdogmus and Govsa, 2005). The advances in the chemosurgical techniques have helped in changing the therapeutic modalities to less aggressive surgical excisions, more focused chemotherapeutic drug delivery to the tumor with less systemic doses and toxicity and with better survival rate of the patients (Gupta et al., 2006).

References


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Available online 25 August 2009