Chapter 7
Parotid Injuries and Fistulae

ABSTRACT

Successful treatment of parotid injuries depends on early recognition and appropriate early intervention. Sequelae of inadequate diagnosis and treatment include parotid fistula and sialocele formation, which are inconvenient for the patient and more difficult to treat than the initial injury. A parotid fistula is a communication between the parotid gland (glandular fistula) or duct (ductal fistula) and the skin externally (external fistula) or to the oral cavity internally (internal fistula). A sialocele is a collection of saliva beneath the skin that occurs if the duct leaks but no fistula forms, or when the glandular substance, but not the duct, is disrupted. Management options include pressure dressings and use of anti-sialagogues, total parotidectomy, tympanic neurectomy, intra-oral transposition of the parotid duct, radiation therapy, the use of botulinum toxin A, and the use of fibrin glue.

ETIOLOGY

Causes of the parotid fistula include (1) trauma (Bergstrom & Hemenway, 1971), penetrating or blunt injury in the region of the parotid gland, or as a complication of facial fractures, (2) improper incision and drainage, or spontaneous rupture of a parotid abscess (or sialocele), (3) intra-operative iatrogenic injury of the gland or duct (following surgery in the maxillofacial region, or in the temporomandibular joint (TMJ) region, parotidectomy or secondary to drainage of facial/parotid abscess, mandibular osteotomy (Shapiro, 1978); Goldberg, 1973; Dierks, 1977; Ting, 2018), or the use

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of external pin fixation (Laskin, 1978), (4) complication of parotid duct cannulation during sialography, and (5) malignant tumors invading to the surface (Ananthakrishnan & Parkash, 1982).

CLINICAL PRESENTATION

Males are twice as likely to experience parotid duct injury as females, and the mean age of individuals with parotid duct injury is approximately 30 years.

History

Important aspects of history of the wound include the circumstances surrounding the injury, precipitating cause, exact mechanism and site of injury, time of occurrence, and treatment initiated prior to presentation.Other important aspects of the history include tobacco, alcohol, or drug use; tetanus immune status; and co-morbid conditions that may place the patient at a higher risk for infection such as diabetes mellitus and immunosuppression.

Physical Examination

An internal fistula constitutes no consequences and requires *no treatment*. However, an external fistula connected with large ducts causes extreme discomfort every time the patient has a meal, smells or even thinks of food, due to excessive outpouring of saliva on the cheek causing skin excoriation (Figure 1). A sialogram will determine whether the fistula is ductal or glandular.

A thorough clinical examination is necessary for proper evaluation of the overall state of health, co-morbidities, nutritional status, and mental status of the patient. Important signs or symptoms related to the wound include pain, fever, edema, discharge, and/or odor. Important aspects of wound assessment include location, shape, size, type (blunt or penetrating), depth, drainage (quality, character, odor), presence of a foreign body (e.g. glass, tooth fragments), loss of tissue, tenderness, asymmetry, surrounding skin (erythema, edema, crepitus), and status of the facial nerve.

An injury classification system that divides the parotid duct into 3 regions has been devised for parotid duct injuries as follows: