A 6-Year-Old Female with Unilateral Cervical Swelling

Abhinn Aggarwal, MD; Hannah Shaheen, MD; and Nida Blankas-Hernaez, MD, FAAP

A 6-year-old female was brought to the emergency department 6 hours after sustaining blunt trauma to the neck. She was playing outside her house when a small motorized bicycle fell on her neck. She was in mild discomfort immediately after the injury and developed significant swelling with tenderness over the following hours. She complained of pain upon swallowing and pain with movement of the neck. She had no significant medical history or prior trauma. Her vaccinations were current and no ill contacts were identified. Her growth and developmental milestones were all attained in normal stages.

On physical exam, she was afebrile. No evidence of erythema or ecchymosis was seen. She exhibited left-sided cervical swelling that was warm to the touch and tender below the left submandibular angle (Figure 1). She demonstrated limited cervical range of motion. Kernig’s and Brudzinski’s signs were negative. Inspection of her oropharynx showed no lesions, erythema, exudates, or edema. On palpation, a 3.5-cm × 2-cm mass was found in the left submandibular region and a 1.5-cm × 1-cm posterior cervical lymph node was palpated.

Her initial labs showed marked leukocytosis. Sonographic studies revealed an isoechic mass in the left upper neck. Computed tomography angiography of the neck with contrast demonstrated no vascular injury. A computed tomography (CT) scan of the neck confirmed the absence of any bony fractures and revealed the diagnosis (Figures 2 and 3).

Figure 1. A 6-year-old female with left-sided cervical swelling at the submandibular angle.

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Diagnosis:

Traumatic Fracture of the Left Submandibular Gland

The CT scan of the neck revealed a traumatic fracture of the left submandibular gland, with no bone fractures. The patient was examined by the trauma surgeon in the emergency department and an ENT (ear, nose, and throat) physician on an inpatient basis. She was started on clindamycin due to significant leukocytosis and cervical adenitis. The day after admission, her leukocytosis resolved and the swelling began to decrease. The patient was treated with analgesics for pain management and a neck brace to immobilize her neck. She was discharged home the following day with instructions to complete the 7-day course of clindamycin and return to the outpatient clinic in 2 weeks for a follow-up. On her follow-up visit, the swelling and tenderness had completely resolved without any complications.

DISCUSSION

The salivary glands are exocrine glands that secrete saliva into the oral cavity via Stensen’s duct and Wharton’s duct. Salivary secretions facilitate mastication and swallowing, as well as the initial digestion of starches by salivary amylase.

Salivary gland injuries, although rare, can result in significant morbidity due to the delicate anatomy of the face. Of the three paired salivary glands, the parotid glands, which harbor the facial nerve and important vessels of the face, are more prone to injury compared with the sublingual and submandibular glands, as the latter two glands are located deeper within the mandibular arch. Because of their location, submandibular gland fractures are rare and most often associ-
ated with mandibular or zygomatic bone fractures. In the case discussed here, the blunt trauma to the neck resulted in an isolated fracture of the submandibular gland, with no complications of other glands or structures surrounding it.

Fractures of salivary glands have been reported in instances of blunt trauma or in penetrating injuries, such as in motor vehicle accidents, sports injuries, gunshot wounds, and injuries of violence. The cornerstone in evaluating these injuries is to thoroughly examine the site of injury and anticipate the signs and symptoms that may be included in the presentation. Proper assessment of these injuries should include a complete head and neck examination for cutaneous, skeletal, dental, vascular, nervous, and salivary duct injuries to prevent further complications and morbidity. Important cranial nerves to assess, based on their close proximity to the salivary glands, include the trigeminal nerve (cranial nerve V), the facial nerve (cranial nerve VII), and the hypoglossal nerve (cranial nerve XII).

Subsequent investigations to consider include sonography and a CT scan, as well as CT angiography of the neck to assess the integrity of vasculature within the region. Lacerations of the salivary ducts usually result in the accumulation of saliva within the wound. Sialography studies examine the integrity of the ductal system and may be ordered to evaluate any ductal disruptions. Surgical repair of lacerations to the ducts should be considered immediately because they have a high risk of developing complications such as a salivary fistula, sialoceles, and mucoceles.

In the absence of cutaneous, skeletal, dental, nervous, vascular, and ductal injuries, expectant management is recommended for salivary gland injuries. Antibiotics are recommended to prevent secondary infection within the gland if at risk of infection, or to treat a concurrent infection. A study conducted by Landu and Stewart suggested that an anticholinergic medication is beneficial because it decreases the production and flow of salivary secretions and helps reduce the irritation within the gland. If injuries are more severe, such as ductal or vascular insults, surgical repair is recommended to prevent further complications.

CONCLUSION

Submandibular gland fractures secondary to blunt trauma are uncommon, especially in the absence of bone fractures. Despite this, they should be considered in instances of blunt or penetrating trauma to the neck. They present as slow-growing, tender submandibular masses. CT scans aid in the diagnosis by providing detailed images of the glands and surrounding structures. Sialography studies can also be used to visualize the salivary duct system. Depending on the injuries sustained, management of a submandibular gland fracture may be conservative or invasive and include immobilization of the neck, analgesia, antibiotics, anticholinergics, and surgery.

REFERENCES