

# Warthin Tumor of Parotid Gland Complicated with Hyperhematuria Amylase: A Case Report and Literature Review

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**Abstract:** Clinically, there are many reasons for the elevation of hematuria amylase, the most common being mumps and acute pancreatitis, but it is rare for parotid gland masses to be associated with elevated hematuria amylase. Reading the literature, it can be found that there are few reports about parotid gland tumors and increased hematuria amylase. Most of them are about CT, puncture and clinical manifestation treatment of Worsing tumor. There are reports about this, but most of them are early and clinical cases are few. In this paper, the common causes of increased hematuria amylase in other tumors, mumps and pancreatitis were excluded by a case of parotid gland tumor with increased hematuria amylase. after rule out a common cause of blood in the urine amylase increases. We explored whether hematuria amylase production was caused by the tumor itself, or whether the location of the tumor was particularly pressing the parotid duct, and the excretion of the conducting amylase was blocked into the blood, resulting in increased amylase, or whether it was the result of both. At present, there is no conclusion for parotid gland tumor with increased hematuria amylase, hoping to provide a new idea for the future cause of increased hematuria amylase, so as to provide help for clinical work.

**Keywords:** Parotid Gland Neoplasm, Amylases, Hyperamylasemia

## 1. Introduction

The incidence rate of parotid gland tumor accompanied by hyperamylase is low. Recently, a case of parotid gland tumor accompanied by hyperamylase was admitted to our department. In order to provide further clinical understanding, the report is reported as follows based on relevant domestic and foreign literature.

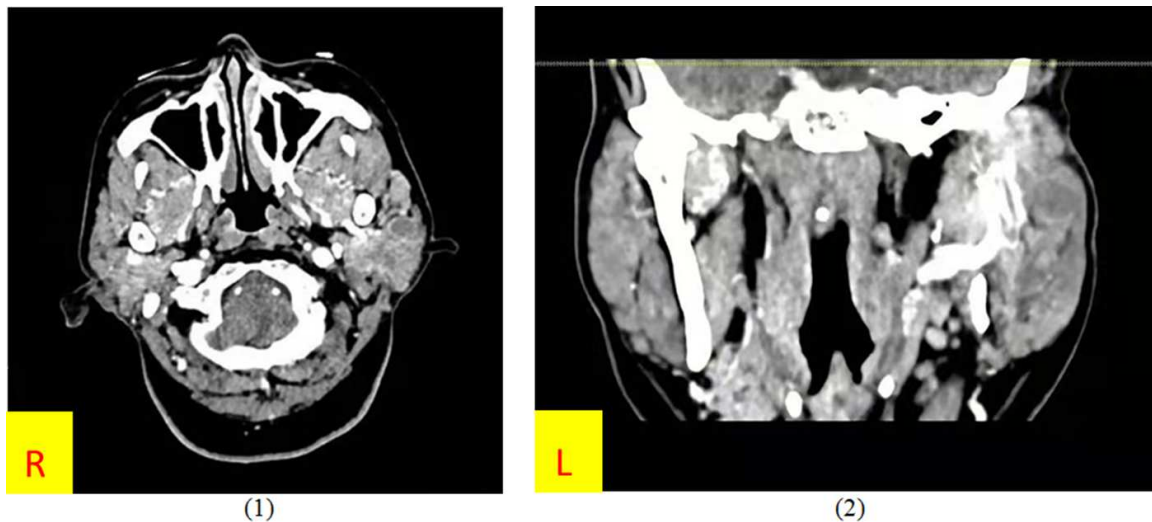
## 2. Case Report

A 69-year-old female patient was admitted to our hospital due to 20 days of increased hematuria amylase and 10 days of left parotid gland mass. Physical examination: the maxillofacial region was basically symmetrical, the skin color on the surface was normal, the skin temperature was normal, a 2cm\*1.5cm\*1.5cm mass was palpable in the left parotid gland

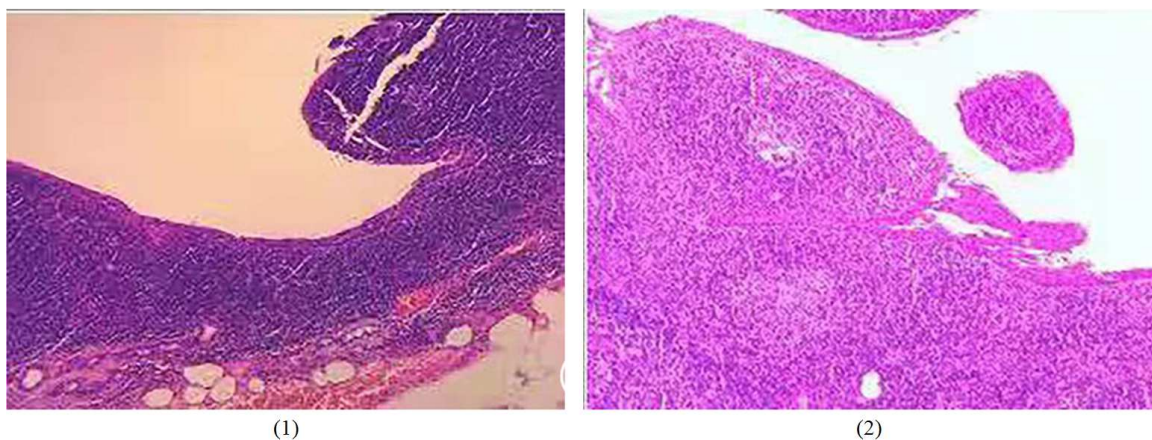
area, the mass was medium, the range of activity was good, palpation boundary was clear, no facial paralysis. Laboratory tests: amylase (blood) at admission was 2556.6.9 U/L, amylase (urine) was 2793.6U/L, lymphocyte was 23.9%, neutrophil was 4.06\*10<sup>9</sup>/L; Antinuclear antibody:positive 1:320 abnormal; Karyotype of antinuclear antibody: nucleolar type; Esr: 6mm/h, rheumatism, immunoglobulin, complement C1q: 125.4.mg/L, IgG4 were normal. Imaging examination: plain CT scan + enhanced parotid gland (Figure 1): space-occupying lesions of the left parotid gland (diameter: about 14mm, CT value: about 60HU), the possibility of benign lesions was considered; Enhanced pancreas CT: no obvious abnormality of the pancreas. Left parotid gland mass resection + left parotid gland partial resection under local anesthesia. Intraoperative mass was found to be located in the front edge of parotid gland, pressing on the parotid gland duct, with a size of about 2cm\*1.5cm\*1.5cm, cystic, oval, purplish red, with complete

capsule and clear boundary with surrounding tissues. After incision, brown fluid was found inside, with crystalline substance. During the operation, attention was paid to anatomical separation and protection of the facial nerve and parotid duct, and the tumor and some surrounding parotid tissue were completely removed. Postoperative pathology (figure 2) showed:(left parotid gland mass and part of parotid gland tissue) Warthin tumor with a small amount of lymph infiltration in surrounding parotid gland tissue. Five days after

the operation, the patients were given symptomatic treatment such as anti-inflammatory and deswelling, and the amylase (blood) was 653U/L and the amylase (urine) was 427U/L. During the follow-up 2 months after the operation, the patient's amylase (blood) was 297.9U/L and amylase (urine) was 123.3U/L, which were significantly lower than before. Follow-up results of the patient's hematuria amylase were closely monitored and changes in hematuria amylase were monitored (Table 1).



**Figure 1.** Enhanced parotid CT: (1) coronal view (2) sagittal view.



**Figure 2.** (1) Warthin's tumor (HE staining multiple 10×40), (2) Warthin's tumor (HE staining multiple 10×40).

**Table 1.** Amylase record Form.

	In the hospital	The First day in the hospital.	The second day in the hospital.	Postoperative day 1	Postoperative day 6	48 days after discharge
Amylase (blood)	2556.9U/L	922U/L	2005U/L	1016U/L	653U/L	297.9U/L
Amylase (urine)	2793.6U/L	901U/L	7309U/L	1946U/L	427U/L	123.3U/L

★ Amylase (blood) reference value 35-135U/L, amylase (urine) reference value 76-529U/L.

### 3. Discussion

The increase of amylase is more common in diseases such as mumps, acute pancreatitis and autoimmune pancreatitis. Mumps often occurs bilaterally at the same time,

accompanied by fever and obvious swelling. The parotid duct orifice is secreted normally, no repeated swelling history, there is a history of contact, laboratory examination of lymphocyte and neutrophil increase; Acute pancreatitis is mainly characterized by sudden severe pain in the upper abdomen, accompanied by nausea and vomiting and other

symptoms, CT manifestations of diffuse enlargement of the pancreas, disappearance of the contour; Autoimmune pancreatitis is characterized by diffuse swelling of the pancreas with a salami appearance and typical imaging findings of irregular narrowing of the main pancreatic duct [1]. Laboratory tests showed that IgG and IgG4 increased. These diseases can be ruled out based on clinical, laboratory and imaging findings.

Parotid gland is the largest salivary gland tissue in the body, and parotid gland tumors account for about 80% of salivary gland tumors, which is also a common type of primary tumors of head and neck [2, 3]. Warthin's tumor, the second most common benign salivary gland neoplasm [4], Some European scholars have proved that Warthin tumor has surpassed pleomorphic adenoma to become the first benign parotid tumor in recent years [5]. It is common in middle-aged and elderly men and is mostly located in the posterior and inferior pole of the parotid gland. It is a tumor composed of glandular epithelium and is often cystic.; Histologically, glandular tissue is seen in the parotid lymph nodes. This vagal glandular tissue has developed a neoplastic lesion known as Warthin's tumor. The parotid gland is the main organ that produces salivary amylase, and studies have shown that the amylase activity of most parotid gland tumors seems to have lost the ability to express [6, 7]. However, Sumitomo's study [8] showed that amylase crystals were not only visible in Warthin tumor during puncture [9], but also single or groups of amylase positive cells were found in tumor epithelium. It is suspected that these neoplastic glandular tissues may secrete amylase based on tissue origin and secretions. Amylase secretion is also affected by amylase activity, which is often enhanced in a variety of human tumors, and amylase can be expressed ectopically in other tissues such as ovary, lung and stomach [10, 11]. It can be considered that the increase of salivary amylase in this case is related to the production of amylase by the parotid tumor itself or the increase of amylase activity. Sometimes CT examination may show cystic changes. Cystic changes usually refer to areas of cystic hypodensity within the lesion caused by necrosis or other causes. "Cystic changes" include cystic changes within the lesion and fissure like low-density areas within the lesion after enhancement [12]. The "cystic changes" are mainly caused by the accumulation of ectopic glandular secretions and the expansion and convergence of glandular lumens, which are rich in mucin components [13].

Warthin's tumor is clinically painless, slowly growing, and cystic if there is no infarction or secondary inflammation. However, the combination of cystic spaces and a poor blood supply makes the Warthin's tumor susceptible to infarction and inflammation [15]. In this case, the tumor was located at the anterior edge of the parotid gland during the operation, partially compressing the parotid duct. It may be due to the special location of the tumor and its own blockage, which caused the duct blockage, so that the salivary amylase could not be discharged normally, and it entered the blood through the lymphatic vessels to increase blood and urine amylase [14], but the tumor was not large enough to completely block

the parotid duct, and amylase elevation was not seen in obstructive mumps and parotid duct misconnection. In this case, preoperative blood and urine amylase did increase, and postoperative amylase was significantly decreased, and the blood and urine amylase returned to normal levels during the 2-month follow-up after surgery.

## 4. Conclusion

In conclusion, there are many causes of elevated hematuric amylase. This paper reported a case of parotid gland tumor complicated with high hematuric amylase. Although the cause is not clear at present, the effect of parotid gland mass in the case of elevated hematuric amylase can be considered, in order to provide new ideas for future clinical work and select a more appropriate treatment plan.

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