

## Sialography – A Case Report

P Rajesh Raj<sup>1</sup>, Nadah Najeeb Rawther<sup>2</sup>, Esha Nausheen<sup>3</sup>, Merlyin Ann Abraham<sup>4</sup>, Giju Baby George<sup>5</sup>

<sup>1,2,3</sup> Postgraduate Student, Department of Oral Medicine & Radiology, Mar Baselios Dental College, Ernakulam, Kerala, India,

<sup>4</sup>General Practitioner, Allapuzha, Kerala

<sup>5</sup>Professor, Department of Oral Medicine & Radiology, Mar Baselios Dental College, Ernakulam, Kerala, India

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**Abstract:** A broad spectrum of pathological conditions can affect our salivary glands paramounting to systemic diseases which characterizes that salivary gland examination is an important part of oral cavity evaluation. Thus sialography has proven to be a reliable & advantageous technique for diagnosing the salivary gland disorders.

**Key Words:** Diagnosis, Parotid gland, Pleomorphic adenoma, Sialography

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### I. Introduction

Sialography is one of the oldest imaging procedures and a present day envisage. It is reliable diagnostic and therapeutic aid which includes the injection of a radioopaque media into the salivary glands.<sup>1</sup> This was first mentioned by Carpy in 1902<sup>2</sup> using mercury as the contrast medium.<sup>3</sup> The method of sialography in the parotid gland was described by Barsony in 1925 using 20% potassium iodide solution but unfortunately this turned out to be a failure as the material was an irritant.<sup>1</sup>

It was in 1931 that R.T. Payne first published a paper on sialography.<sup>1</sup> He gradually injected 0.5 to 1 ml of lipiodol into the orifice of the gland until the patient complained of discomfort. The main drawback encountered during the procedure was the abscond of this light instrument from the ductal orifice during the manipulation of the patients head. Later neohydriol fluid was used because its low viscosity and greater ease of injection with minimal effort.

### II. Case Report

A 65 year old male patient sought medical attention for a large growth on the right side of his face with respect to the preauricular region since the last 30 years.[ Figure 1] Initially it was small in size which has gradually increased to the present size causing the ear lobes to be raised. The patient was completely asymptomatic. The swelling was roughly oval in shape and firm in consistency on palpation with a normal shin texture. It was also fixed to the underlying tissues. After clinical, radiographical & histopathological confirmation this lesion was diagnosed as pleomorphic adenoma of the salivary gland. Axial CT shows a lobular mass with a well circumscribed borders on the right parotid giving the impression of an adenoma.[Figure 2] Hence in this article we are discussing a case report of sialography done in a male patient along with its characteristic appearances.

### III. Discussion

Salivary glands are exocrine glands in mammals that produce saliva. A variety of disease processes affect the salivary glands, including inflammatory, systemic, obstructive and neoplastic.<sup>3</sup> Imaging plays an important role in the detection, diagnosis and differentiation of malignant lesions from benign. The radiographic sialography demonstrates the ducts, ductules and parenchyma of the salivary glands by the introduction of a fat-soluble and water soluble radiopaque contrast medium into their excretory ducts.<sup>2</sup>

#### Clinical Applications Of Sialography -

- For determining the functional integrity of the salivary glands
- For determination of the presence of calculi ( occurs in less than 2% of the cases), recurrent parotid swellings
- For ductal obstructions due to infections or other inflammatory lesions, tumor
- Sjogren's syndrome
- Salivary fistulas
- Surgical planning.<sup>2</sup>

**Technique Employed -**

1. Before starting the procedure: any removable dental work, jewelry, or other opaque items must be removed.
2. Adequate space must be provided for an overhead lamp.
3. A primary x-ray called a ptyalogram or scout radiograph is obtained. [Figure 3]
4. The cheek is everted using the thumb & index finger and the orifice of the stenson’s duct opposite the upper second molar is noted. If the opening is not identified then massage over the gland which produces a dilatation of the orifice with a rapid ejection of saliva. 0.5 % Hydrochloric acid or lemon can also be used to produce a rapid flow of saliva.
5. The ductal orifice is dilated using lacrimal dilators for the introduction of the cannula. If the orifice is dilated too much then it can lead to a false picture on the x-rays & rapid emptying of the gland.
6. The needle of a 5 ml syringe is angled in the upper 1/3 rd of the shaft to facilitate smooth introduction of the dye into the ductal orifice.
7. Not more than 2 ml of the dye is introduced. An outline of the ductal structure along with the parenchymal structures can be easily visualized. Some authors suggest a dose of 0.5 – 0.75 ml for parotid gland.
8. A series of radiographs are taken to evaluate the flow of the contrast medium. A good x-ray image can be obtained up to 20 minutes of the injection of the dye. OPG & the lateral views provide an ideal image.[Figure 4]In our case a ball in hand appearance was seen .

Sialography is contraindicated if

1. a patient has known allergies to contrast media
2. in case of acute severe infection of a gland
3. In those performing thyroid function tests

The most common clinical manifestation of a salivary gland neoplasm is an enlarging mass & the first step in clinical evaluation is that if the swelling is accompanied by pain.

Examples of benign neoplasm are monomorphic adenoma & myoepitheliomas. The most common benign neoplasm involving the salivary tissue is pleomorphic adenoma. 80% of adenomas are located in the superficial lobe of parotid gland. On Ultrasound, the tumor appears as a hypoechoic lesion with well demarcated lobulated margins. These benign mixed tumors occur commonly in the middle aged women.

In our case the patient is a male sexagenarian who was also diagnosed with pleomorphic adenoma. Another common condition affecting the parotid gland is the obstruction of the duct. When affected by any infection then this bears a close resemblance to the inflammatory types & the sole diagnostic aid is the proper clinical history with sialography. Pappilary ductal obstruction is caused by the trauma to the pappilae of the stensons duct. This can occur either due to ill fitting dentures because of the resorption of the alveolar ridge, due to the erupting molars in the young, or due to the poor oral hygiene. When the inflammation has settled down then this my lead to fibrosis which can then lead to stenosis & finally ulceration. Painful lesions involve the obstructive or inflammatory diseases & the painless masses are the neoplasms, cysts or lymph nodes. Other signs of malignant parotid neoplasms are infiltration of the overlying skin, salivary gland adenopathy and facial nerve palsy. In our case the patient was totally asymptomatic. Another interesting fact is that the smaller the swelling the higher is the rate of malignant transformation which is usually 20 – 25 %.

The swelling can get increased during the time of meals & the patient may feel some discomfort. This is palable and pressure can give rise to the ejection of clear saliva. there can be pain if there is infection

Some authors suggest MR imaging as the exclusive technique for the revelation for the neoplasms of the major glands. This is because of the hyperintese fatty background of the gland yields information of the true margins of the gland and the deep extend It does not require cannulation of the duct nor does it use a contrast media. It is neither painful nor does it require ionizing radiation. Thus it is useful and might be able to replace classical sialography when it fails to evaluate the salivary gland and the duct.

Normal sialogram pattern of parotid gland	Tree in winter appearance
Normal Sialogram pattern of submandibular gland	Bush in winter appearance
Sialodochitis	Sausage like appearance
Sjogrens syndrome	Snowstorm appearance Cherry blossom appearance
Sialadenitis	Sialectasis
Benign tumor	Ball in Hand appearance

In our case a ball in hand appearance was seen in the sialogram taken suggesting a benign neoplasm. This kind of an appearance occurs due to the ductal displacement or compression by the tumor causing an area of underfilling within the gland.

Possible complications include:

- Pain on injection,

- Post procedural infection,
- Ductal rupture,
- Extravasation of contrast media

#### IV. Conclusion

Sialography remains the "standard" invasive imaging technique for studying the extra and intraglandular ductal system despite the sophisticated imaging techniques currently available. Its high spatial resolution allows detailed view of the glandular duct and excretory tree with parenchymal ductal branching, enabling ideal & confident detection, diagnosis & differentiation of subtle pathological changes in these structures and also holds significant importance in the treatment planning.



Figure 1 – 65 year old male patient

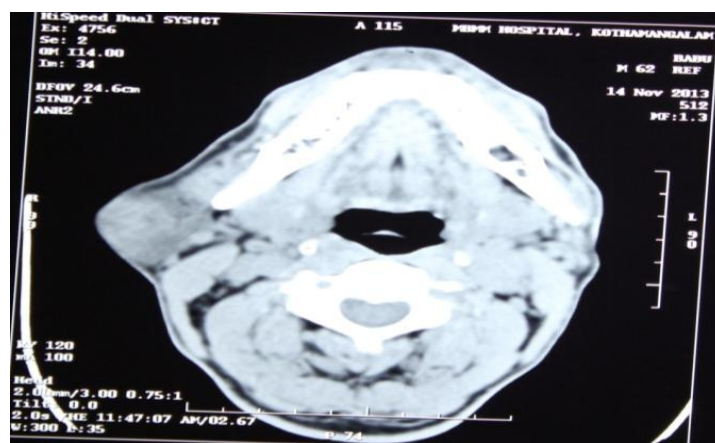


Figure 2 CT of the patient



Figure 3 – scout radiograph

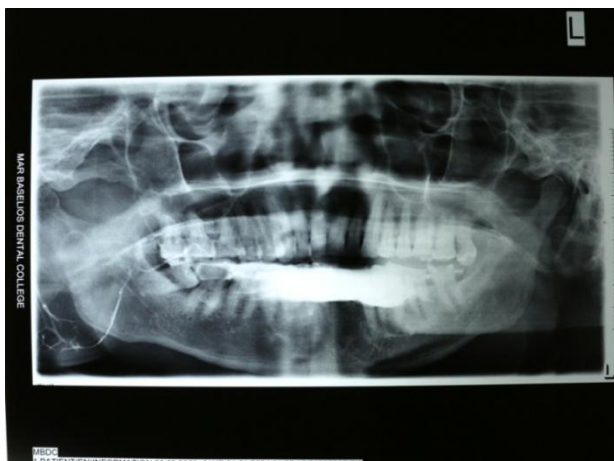


Figure 4 sialogram

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