

# **Endoscopy and Endoscopic-Assisted Surgical Treatment of Obstructive Salivary Gland Disease**

*Meta-analytic Study*

*For Partial Fulfillment of Master Degree in  
OtoRhinoLaryngology*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لسبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدقة الله العظيم

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✍ **Sahar Ibrahim Nour El Deen**



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## **List of Abbreviations**

<b>CI</b>	: Confidence interval.
<b>Df</b>	: Degree of freedom.
<b>ESWL</b>	: Extracorporeal shock wave lithotripsy.
<b>FEM</b>	: Fixed effect model.
<b>HIV</b>	: Human immunodeficiency virus.
<b>HIV-SGD</b>	: HIV-associated salivary gland disease.
<b>P</b>	: Parotid.
<b>SL</b>	: Sublingual.
<b>SLE</b>	: Systemic Lupus Erythematosus.
<b>SM</b>	: Submandibular.
<b>RPC</b>	: Recurrent parotitis of childhood.

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## Abstract

**Background:** The introduction of salivary gland endoscopy there has been a major step forward in providing an accurate means of diagnosing and locating intraductal obstructions, also in permitting minimally invasive surgical treatment that can successfully manage those blockages that are not accessible intraorally.

**Methods:**The study will include published medical articles concerning the efficacy and safety of endoscopy and endoscopic assisted surgery in the treatment of obstructive diseases of the salivary glands through searching the Medline data base.

**Results:**Meta-analysis for the efficacy of endoscopy in the treatment of obstructive diseases of the salivary glands through is 83% (95% CI 81%-85) and the efficacy of endoscopic assisted surgery in the treatment of obstructive diseases is 90% (95% CI 87%-93%).

**Conclusion:** Sialendoscopy and endoscopic assisted surgery are efficient in the treatment of obstructive salivary gland disease.

**Key words:** sialoendoscopy, sialolithiasis, sialadenitis, stricture, Minimally invasive technique.



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# Introduction

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## Introduction

Obstructive salivary disease represents approximately one-half of benign salivary gland disease. Sialolithiasis is the main important cause of obstructive salivary diseases, being involved in 66% of cases and accounting for about 50% of major salivary gland diseases (*Marchal et al., 2001; Epker, 1972*).

Sialolithiasis is more frequent in male patients. Incidence peaks between the age of 30 and 60 years, and it is less common in children as only 3% of all sialolithiasis cases occur in the paediatric and population (*Lustmann et al., 1990; Nahlieli et al., 2000*).

Submandibular gland obstruction accounts for 80% to 90% of cases followed by obstruction of the parotid (5%-10%) and sublingual (1%) glands (*Brodner, 1993*).

The most common causes comprise sialolithiasis, stenosis, mucus plugs, polyps, foreign bodies, external compression, or variations in anatomical ductal systems. Patients often present with recurrent and painful glandular swelling, which can be complicated by purulent discharge, bacterial superinfection (*Marchal et al., 2001*).

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Traditional management involves a conservative approach; however, refractory cases may require surgery ranging from papillotomy to complete excision (*Marchal et al., 2001*).

The most common post-operative complications include nerve injury, recurrent symptoms due to stones retained in the remaining duct and unsatisfactory aesthetic outcomes. Capaccio and colleagues reviewed complications following parotidectomy and described the incidence of permanent facial nerve injury (1%-3%), sensory loss in the distribution of the greater auricular nerve (2%-100%), and Frey syndrome (8%-33%).

For submandibular gland resection, the incidence of permanent marginal mandibular nerve injury (1%-8%), hypoglossal nerve injury (3%), and lingual nerve injury (2%) are documented. Other potential complications include aesthetic sequelae, salivary fistulas, sialoceles, hematomas, and wound infection (*Capaccio et al., 2009; Hald et al., 1994*).

The main minimally invasive gland-preserving techniques currently used in the management of obstructive salivary disease, including shock-wave lithotripsy, sialoendoscopy, interventional radiology, endoscopically

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video-assisted trans-oral and cervical surgical retrieval of stones, and botulinum toxin therapy.

Sialendoscopy has been used in clinical applications and has become the diagnostic tool and treatment of choice for ductal disorders of the salivary glands. The natural evolution of proper technical instrumentation and sialoendoscopes has made it a safe, easy and indispensable technique. Sialendoscopy is a minimally invasive procedure that can be carried out under local anaesthesia. The procedure can be performed in an outpatient setting since complication rates are low and recovery time is short (*Luers et al., 2010; Nahlieli et al., 2006*).

The successful application of sialendoscopy, as with all minimally invasive procedures, requires a well-organized training program. This includes appropriate diagnostic work-up, operative setting and patient selection. It is also important to understand the possible pitfalls. Since sialendoscopy requires specific expertise, the surgeon's level of training and experience are key factors in achieving a successful outcome. Learning curves for other endoscopic procedures have already been widely reported; however, the first reports regarding sialendoscopy are very recent (*Nahlieli et al., 2006; Vairel et al., 2012; Modest et al., 2014*).



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# Aim of the Work

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## **Aim of the work**

The aim of the current study is to determine the efficacy and safety of endoscopic transoral surgical management and endoscopic assisted transcervical surgical management in the treatment of obstructive diseases of the salivary glands.