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Research Article

**COMPLICATIONS OF FUNCTIONAL ENDOSCOPIC SINUS  
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**Abstract:**

*It has been observed that functional endoscopic sinus surgery is one of the refined surgery, which has evolved the surgical management of chronic sinus diseases. This surgery has an important role in managing certain conditions in the ophthalmic field. The associated complications mainly incurred due to common anatomic areas among otolaryngology and ophthalmology. It has been found that complications related to sinus surgery vary in terms of severity of illness. Functional endoscopic sinus surgeries all over the world are referred to as highly sophisticated ones. The current study was done in King Abdul Aziz medical city Jeddah by involving 200 patients from January 2015 to January 2017. The patients underwent functional endoscopic sinus surgery operation and were followed postoperatively and checked for complications. The study was to examine major complications as a resulting from endoscopic surgeries.*

**Keywords:** *Functional Endoscopic Sinus Surgery (FESS), Ophthalmic, Surgeries, Tumors.*

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**INTRODUCTION:**

Functional endoscopic sinus surgery is regarded as an invasive technique used in the surgical fraternity to restore patients' sinus ventilation as well as returning to normalcy. The historical Perspective on FESS is associated with Kennedy who coined the term. Whereas endoscopic orbital decompression in reference to FESS came about by Kennedy and Michel in the early 1990s, it has come to be of great use in the modern times. In addition, enhanced visualization to significant anatomic landmarks is a critical area of decompression in optic neuropathy, has made endoscopic surgery a versatile tool. The concept of FESS globally is not new, it entails the removal of tissue obstructing the Osteo Metal Complex (OMC) while facilitating drainage and conserving mucous membrane and patients' normal non-obstructing anatomy. Cumberworth, Sudderick and Mackay (1994) clarified that a rigid fiberoptic nasal telescope offers outstanding intra-operative visualization of the OMC, which allows surgery to pay attention to the important areas [1].

**BACKGROUND:**

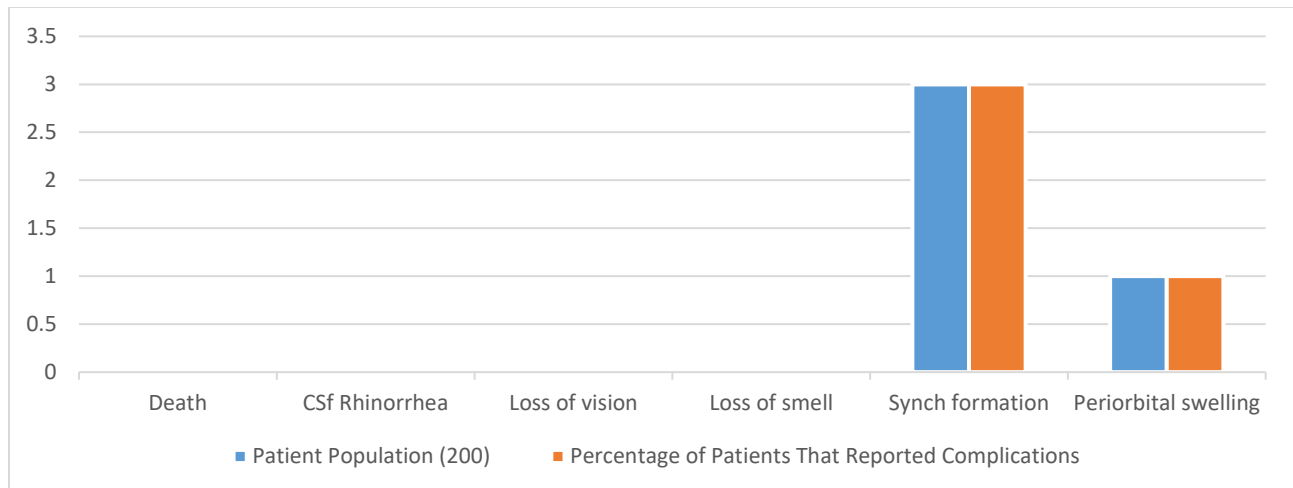
Functional Endoscopic sinus surgery (FESS) refers to the removal of certain tissues that are obstructing Osteo Metal Complex (OMC) and facilitate drainage through conserving the normal non-obstructing anatomy. This surgery is based on a rigid fiberoptic nasal telescope that provides intra-operative

visualization to the surgeon. During the surgery practice, the image is projected on a screen for further monitoring by attaching the small camera on the eyepiece of the endoscope [2]. This powered instrument has supported for improving efficiency and safety of surgery process. Initially, endoscopic gently approach to nose tumors, sinus, orbit and anterior cranial fossa. This has been applied with the combination of powered dissection with suction that transformed endoscopic sinus surgery. This includes implementing new technology for producing undisputable advance. According to the study of Villarreal, et al., (2018) which specified that it is safe for the surgeon to safe around the skull base due to which it cannot grip intact bond. This has developed the sense of safety. For instance, localized hematoma collection is a problematic task, which may damage the nerve and result in complete blindness. In order to avoid these functional complications, it is essential to take safety measures before surgery. The safety measures cannot be taken without precise knowledge [4]. This safety measures are based on the ability of surgeons to analyze the par nasal sinus CT scan and experience surgical skills.

**RESULTS:**

3-month postoperative endoscopic sinus surgery operation follow up findings - from January 2015 to January 2017 King Abdul Aziz Medical City Jeddah

Type of Complication	Patient Population (200)	Percentage of Patients That Reported Complications
Death	0	0
CSf Rhinorrhea	0	0
Loss of vision	0	0
Loss of smell	0	0
Synch formation	3	3
Periorbital swelling	1	1



The study was carried in King Abdul Aziz medical city Jeddah, whereby 200 patients performed functional endoscopic sinus surgery operation from January 2015 to January 2017. After the surgery, the patients were followed postoperatively and checked for both minor and major complications, and their experiences at large [17]. Results showed no major complications if done by properly trained endoscopic surgeons thus three patients reported synch formation while one indicated to having pre-orbital swelling. This translated to one percent of the total number of patients. The rest of the patients who underwent the surgery did not report any complications.

### DISCUSSION:

It has been found that the field of FESS was not only limited to the domain of Otolaryngology as it is the sign of ophthalmology [5]. This is particularly related to orbit endoscopy as it became clearer and put the patient at higher risk. In relation to this, the signs of ophthalmic contain orbital thyroid decompression of orbitopathy, Optic Nerve (ON) decompression, pituitary tumor surgery and lacrimal obstruction. Additionally, the surgeon ensures for grasping instruments and cutting the edges of bones. According to Chaaban, et al., (2018) the relationship among ophthalmology and otolaryngology can exploit the conditions in silent sinus syndrome, orbital decompression, lacrimal duct problems and optic nerve decompression. Furthermore, this includes orbital trauma, tumor surgery, complications of endoscopic sinus surgery and drainage of the subperiosteal abscess [6].

Functional Endoscopic Sinus Surgery (FESS); Researchers over the past decades have been using endoscopic sinus surgery widely and regarded as an effective and safe mode of treatment for Para Nasal Sinus (PNS) disorders as well as related problems [7]. In order to improve efficiency and safety various

endoscopic approaches to benign tumors of the sinuses, nose, anterior cranial and the orbit are well utilized. Like in other FESS cases, the current study in King Abdul Aziz medical city Jeddah, which involved 200 patients for the period from January 2015 to January 2017, presented a lower percentage of patients who experienced complications. However, the use of new technology of instrumentation has been associated with a reduced number of complications. King Abdul Aziz medical city Jeddah case is with no exemption. According to In Jaffe, In Schmiesing and In Golianu, (2014) use of powered cutting instruments is regarded to be safe around the skull base reason being it cannot grasp the intact bone and its membrane [8].

The surgical aspect of the sinus endoscopic surgery which operates under tropical and local anesthesia, which has presented certain safety, measures in the sense that in case of any pre orbital to create a painful response from the patient which affect the sights of the patients. Therefore, there are no benefits that presented in the normal anesthesia [9]. Moreover, it is important for the surgeon to the increase an important ostium of the inferior turbinate. In this regard, the expected risk extension for damage on anterior should be avoided. In this aspect, patients are required to avoid blowing their nose during the first 48 hours after surgery due to the risk of surgical emphysema that sometimes results in a cranial cavity. Additionally, the existence of ethmoiditis with subperiosteal abscess or orbital edema that located in lateral [10]. Therefore, it is recommended to the surgeon to use the endonasal approach during Functional Endoscopic sinus surgery.

Based on the findings of the current study it can be argued that major complications after FESS are highly connected to the changeability of the region's framework and the closeness of the orbits and brain. Further, King Abdul Aziz medical city Jeddah study

indicates that major FESS complications occurred in approximately less than 1%. complication of fess can be, orbital hematoma, bleeding from ethmoidal, diplopia, carotid artery or sphenopalatine, tear, cerebrospinal fluid leak, anosmia, meningitis, brain abscess, toxic shock syndrome, direct brain trauma, injury to the optic nerve, and death. Nevertheless, of these minor complications transpires between 2 to 3 percent of cases reported. Kennedy, (1985) specified that this includes orbital emphysema, minor bleeding, atrophic rhinitis, eyelid ecchymosis, local infection, and temporary dysfunction of the olfactory nerves [11].

Damage to the eye or Intra-orbital complications because of FESS procedure can be associated with loss of eyesight. In spite of the direct impact on the internal eye tissues, it also affects the surrounding tissues. The location of the human eye is directly next to numerous para-nasal sinuses which separated by a thin bone layer. The proximity, which rarely happens, may cause bleeding into the orbit before the performance of initial surgery hence requiring treatment before the surgery. In addition, cases of blindness and visual loss have been reported although it is extremely rare. Also, there is damage to eye movement muscles which lead to double vision. Another uncommon problem is damage to the muscles that move the eye, leading to double vision, which may occur permanently or temporary [12]. However, sometimes changes may occur in the function of the tear ducts leading to excessive tearing. The closeness of the eye to sinuses presents a possibility of a major orbital complication. To others, it may cause blindness altogether without undergoing any surgery for individuals with refractory sinus and related infections.

Intracranial complications because of FESS can be related to the connectivity between the floor of patients' brain and where his or her septum joined to the roof of the nose. Stammberger, Kopp, DeKornfeld, and Hawke (1991) clarified that whenever the thin bone layer is fractured, cerebrospinal fluid or brain fluid, which sometimes may leak into the nose creating problems [13]. It has happened rarely during primary surgeries whereby some cases it may lead to brain infection through the lining resulting in meningitis. However, bleeding into the brain requires more attention and to some extent the need for more intracranial surgeries or medical attention [14].

The other notable complication is the presence of an impaired sense of smell or taste or smell. As per Krouse and Christmas (1997) argument, the sense of smell tends to improve after the surgery main reason being that airflow is restored [15]. Further, Bhat, In Meghanadh, In Sethi and Elsevier Clinical Advisory

Board (2012) stated that in sporadic cases it could move to the worse situation depending on how patients' infection, swelling or allergic status is [16]. Despite all these, the state of patients' impairment can be upheld in temporary bases but with the help of professionals can be extended to.

Cerebral Spinal Fluid (CSF) leakage can be attributed to all surgeries on the sphenoid, frontal sinuses and ethmoid, which carries cerebrospinal fluid. CSF surrounds the brain and therefore any disruption to the barrier may cause leakage to the nose, because of patients' disease or surgical manipulation. Whenever this complication occurs, there are high chances of creating a potential pathway for infections, which in turn may spread from sinuses and nose to the patients' brain [13]. In this regard, improvement may be witnessed while to others the situation may worsen. Moreover, small dry scabs in the nasal cavity are required to be removed by surgeons during postoperative visits [15].

#### CONCLUSION:

Altogether, there are few cases of complications from the manipulations performed during the post-operative visits whereby the theoretical risks are equally the same as the main surgery itself. Nearly all surgeries and postoperative care are closely similar and therefore the consent given for surgery automatically includes consent for postoperative care. In modern times, CSF leaks are catered for by doing regular repairs by use of nasal telescopes. However, whenever these leakages occur, surgery or additional hospitalization is recommended to patients. FESS like other surgeries dealing with sinus is regarded as the most successful to patients having recurrent chronic sinus infections. In fact, patients having predominant symptoms towards nasal blockages, sense of smell and facial pain responds well after surgical process. Overall, if properly trained endoscopic surgeons undertake surgeries the possibilities of any major complications are minimal.

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