Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Otolaryngology

An Uncommon Co-Occurrence: A Case Report of Laryngeal Actinomycosis and Vocal Cord Carcinoma with Literature Review

Dr O. Qassab[1*], Pr. M. Hmidi[2], Pr A. Kessab[2], Pr. K. Nadour[2]

[1]Otolaryngology - Head and Neck Surgery Department, Hassan II University Hospital of Fez, Morocco
[2]Otolaryngology - Head and Neck Surgery Department, Military Hospital of Moulay Ismail, Meknes, Morocco

DOI: https://doi.org/10.36347/sjmcr.2026.v14i04.064 | **Received:** 07.06.2025 | **Accepted:** 31.07.2025 | **Published:** 29.04.2026

***Corresponding author:** Dr O. Qassab
Otolaryngology - Head and Neck Surgery Department, Hassan II University Hospital of Fez, Morocco

Abstract | **Case Report**

Background: Cervicofacial actinomycosis (CFA) is a rare but treatable infection typically associated with poor dental hygiene, immunosuppression, or prior mucosal injury in the upper aerodigestive tract. Although rare, when cervicofacial actinomycosis involves the larynx, it may be misinterpreted as a mucosal mass. Moreover, reports of association with laryngeal carcinoma are exceptionally rare in the literature. ***Case presentation:*** A male patient, in his fifth decade, presented with laryngeal carcinoma accompanied by actinomycosis, which was confirmed through biopsy. The patient received antibiotics to treat the infection and was subsequently referred for radiotherapy, as he declined surgical intervention for his carcinoma. His condition showed a favorable clinical outcome during follow-up. ***Conclusion:*** The simultaneous occurrence of laryngeal carcinoma and actinomycosis is exceedingly rare, making it a particularly unusual clinical scenario. Clinicians should be vigilant in evaluating patients with laryngeal carcinoma for signs of actinomycosis, as timely recognition and appropriate management of this rare co-occurrence can significantly impact patient outcomes and prevent misdiagnosis or delayed treatment.

Keywords: Actinomycosis; granulomatous, laryngeal; vocal cord; carcinoma; radiotherapy; antibiotics.

BACKGROUND

Cervicofacial Actinomycosis is a chronic, suppurative granulomatous inflammation caused by Actinomyces israelii [1], a filamentous gram-positive organism belonging to the genus Actinobacteria. It is a normal commensal in humans in the oral cavity, lower gastrointestinal tract and female genital tract [1]. Based on the infection site, Actinomycosis can be classified into several categories: Cervicofacial actinomycosis, Thoracic or respiratory tract actinomycosis - usually due to aspiration of infected material-, Abdominal actinomycosis -commonly affecting the appendix, cecum, and liver- and Pelvic actinomycosis, often linked to complications from intrauterine contraceptive devices [2]. In rare instances, the infection may also involve the joints, skin, or central nervous system [2]. The incidence of actinomycosis in humans is relatively rare, with most major medical centers diagnosing approximately one case per year, leading to an overall incidence of about one in 300,000 [3].

CASE PRESENTATION

We report the case of a 49-year-old male with a smoking history who presented to our ENT department with hoarseness and dysphonia evolving for the last 10 months, along with intermittent dyspnea on exertion. Physical examination concluded poor dental hygiene with several carious teeth but no suspect lesion on the oral mucosa, no cervical lymphadenopathy or goiter. Fiber optic endoscopy revealed a mass on the posterior half of the right vocal cord, extending into the subglottic space, while both vocal cords had normal mobility. For further characterization of the mass, a computerized tomography (CT scan) with contrast injection was ordered [Figure 1A-1B].

The patient underwent direct laryngoscopy under general anesthesia. The procedure identified a tumor on the right vocal cord extending into the subglottic region [Figure 2]. The anterior and posterior commissures, both ventricles and ventricular bands, and the left vocal cord were unaffected. Multiple biopsies were taken and histopathology confirmed squamous cell carcinoma (SCC) with concurrent actinomycosis [Figure 3-4].

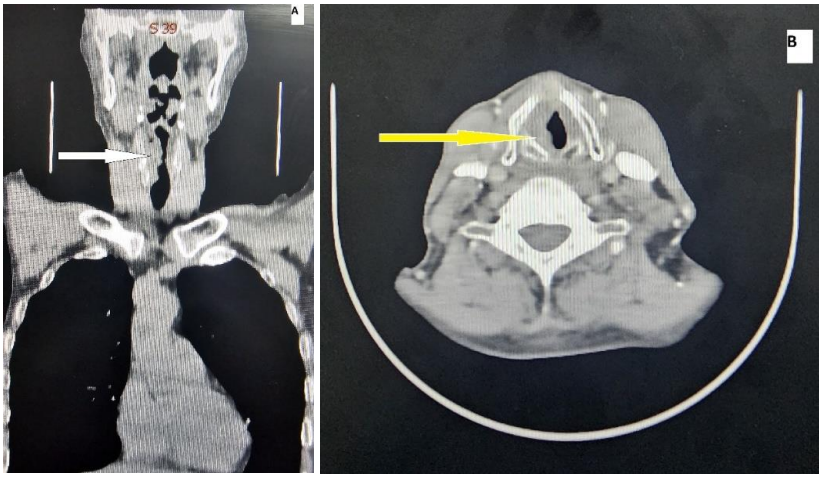

Figure 1: Cervical CT scan on coronal (A) and axial (B) view showed a tumor on the right vocal cord extending into the subglottic region

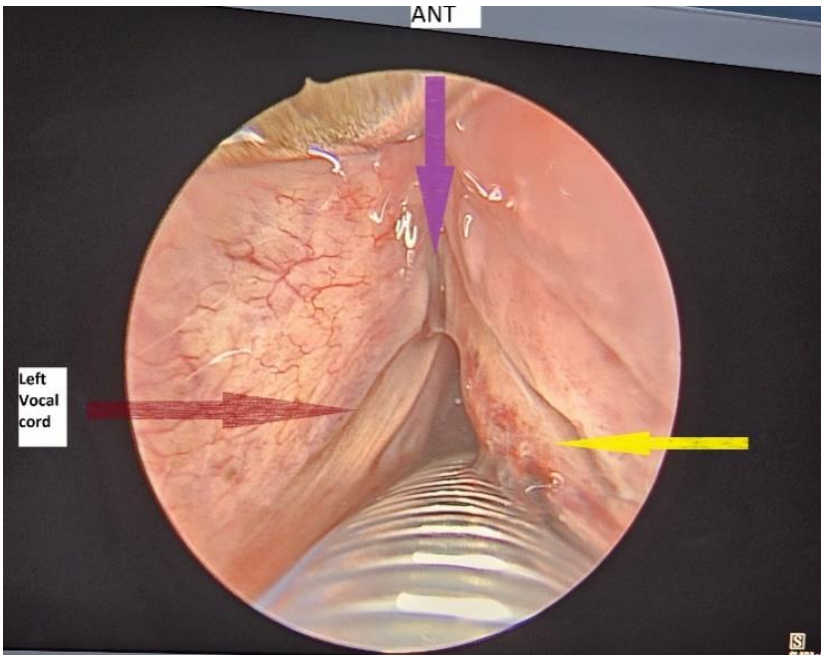

Figure 2: an endoscopic image showing a mass in the posterior half of the right vocal cord (yellow arrow)

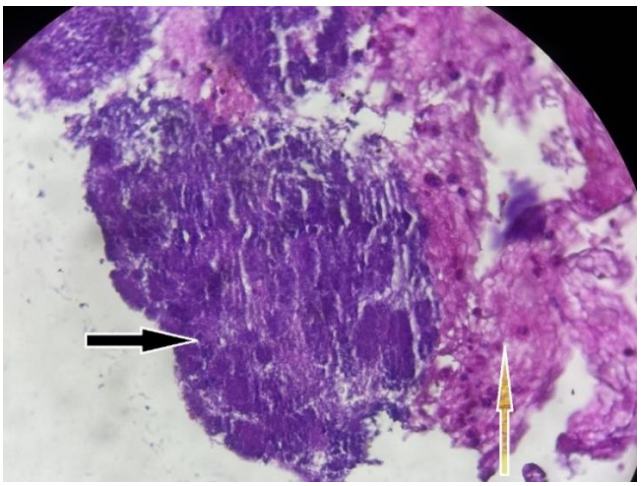

Figure 3: characteristic sulfur granules (black arrow) with a "sunburst" appearance are seen in the purulent discharge (yellow arrow) (Splendore–Hoeppli reaction)

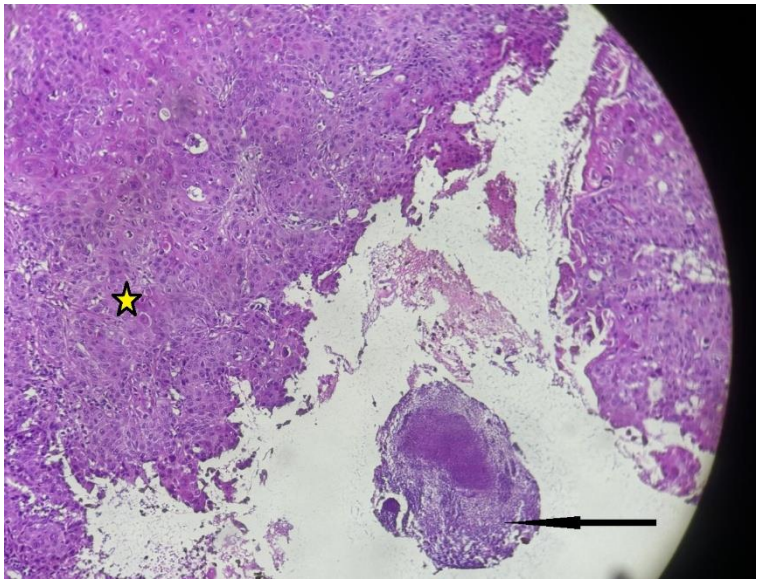

Figure 4: Sulfur granules (arrow) surrounded by a dense inflammatory cell infiltrate (star)

Regional and distant metastases were excluded through CT scan of the neck, thorax, and abdomen. The tumor was staged as T2N0M0. The patient refused surgery for his carcinoma and was referred for radiation therapy along with antibiotic treatment (amoxicillin with a dosage of 500 mg three times a day during 8 weeks). During the follow-up period, he remains alive and free of recurrence of both laryngeal carcinoma and actinomycosis. The patient's episodes of care timeline are reported in figure 5.

DISCUSSION

Actinomycosis is an exceptionally rare condition, with laryngeal involvement being even more uncommon [3-4], as fewer than 30 cases have been reported in the literature [5]. Adding to its rarity, the association of actinomycosis with an initial diagnosis of laryngeal carcinoma has been reported in only three other cases in the literature [2], making our case the fourth documented instance worldwide. This highlights the exceptional nature of such occurrences and the uncommon intersection of these conditions.

Actinomycosis was first identified by Israel in 1878, and the causative germ, Actinomyces israelii, was isolated by Wolfe in 1891 [1]. This gram-positive anaerobe has been linked to CFA [1]. CFA is often referred to as a "great masquerader" in head and neck diseases [6].

The pathogenesis of laryngeal actinomycosis remains unclear. It is not well understood why Actinomyces species, normally found in the mouth as a commensal saprophyte of the oral flora, become pathogenic. Some factors such as poor dental hygiene, oropharyngeal damage and trauma, diabetes, immunodeficiency, steroid therapy and malnutrition [7] are believed to predispose individuals to this condition. Consequently, we hypothesize that in our patient, dental caries along with his laryngeal carcinoma may have compromised the normal mucosal barrier, facilitating the onset of the infection. In fact, a review of the literature indicates that laryngeal actinomycosis is frequently associated with a history of squamous cell carcinoma of the larynx and subsequent radiation therapy [8]. Additionally, cases have been reported in patients with systemic lupus erythematosus (SLE) and those who are immunosuppressed following renal transplantation [9]. However, actinomycosis can arise without any identifiable risk factors, with around 25% of patients having no known predisposing conditions [5].

Clinically, patients with actinomycosis may experience a range of symptoms including dysphonia, dysphagia, dyspnea, stridor, cough, odynophagia, pharyngitis or a sensation of a foreign body or heaviness in the pharynx. They may also present with general symptoms such as weight loss and fever, depending on the infection's location. In our case, the infection involved the vocal cord, which is the most frequently affected site, occurring in 58.3% of reported cases [5]. This is followed by the anterior and posterior commissures and the vestibular folds, each involved in 20.8% of cases. The aryepiglottic fold is affected in 16.7% of cases, while the epiglottis and pyriform sinus each appear in 4 cases. There are also isolated reports of invasion into the thyroid cartilage and subglottic region [5].

The clinical presentation of actinomycosis is nonspecific and may mimic conditions such as laryngeal carcinoma [10], papilloma [11], radionecrosis or recurrent carcinoma [12]. Thus, it is crucial to differentiate actinomycosis from these other conditions through biopsy. Differential diagnoses might also include abscesses, congenital anomalies, tuberculosis, or fungal infections [13]. While imaging findings are not specific and blood cultures and serologic tests are not

particularly useful for diagnosis [14], a biopsy and microscopic examination of the specimen remain the most effective and sensitive methods for confirming actinomycosis [15]. Microscopically, typical sulfur granules can be observed amidst the suppurative inflammation. These granules consist of conglomeration of filamentous gram-positive bacilli that are ensconced in a biofilm-like substance; they appear within the center of suppurative lesions. The bacilli are surrounded by eosinophilic amorphous material with a club-shaped configuration, a phenomenon known as the Splendore–Hoeppli reaction [2,5]. This reaction features clusters of bacteria surrounded by radiating, intensely eosinophilic material, which is believed to represent deposits of antigen-antibody complexes and debris from host inflammatory cells [2,5].

The treatment of actinomycosis infection depends on the extent of the lesions. Laryngeal actinomycosis generally responds well to prolonged penicillin or tetracycline therapy, with complications being rare but sometimes necessitating surgical intervention [13,15,16]. Excisional biopsy combined with penicillin-based therapy is often considered the definitive treatment approach [13]. However, surgery remains a critical option for advanced cases, involving thorough incision and drainage of abscesses, and wide excision of necrotic tissues, fistulous tracts, and affected bone [13,15,16]. For our patient, medical therapy alone was deemed sufficient, as the excision performed during the biopsy effectively addressed most of the lesion.

Table 1: Summarizes All Laryngeal Actinomycosis Cases Reported in the Literature to Date

Authors	***J.H. Brandenburg and al***	***S.O. Shaheen and al***	***R.A. Hughes and al***	***D.H. Tsuji***
Year	1977	1983	1984	1991
Country	USA	United Kingdom	USA	Japan
N° Of Cases	1	1	1	1
Age/ Sex	67/M	45/M	66/M	68/M
Location	Subglottic +/- tonsillar	right cricothyroid area and vocal cord	Pyriform sinus, aryepiglottic fold, hypopharyngeal wall	Left glottic area
Risk Factors/ Symptoms	None / seven-month history of progressive dyspnea, hoarseness, and nocturnal stridor with weight-loss	Removal of molar tooth / recurrent sore throats, swelling	Diabetes/ Pharyngitis, stridor dysphagia over 5 days and weight loss	radiation therapy for laryngeal cancer / sore throat, odynophagia, and hoarseness with fatigue and slight dyspnea.
Treatment	Excision+ long term antibiotics (2 million units of penicillin IU every four hours for two weeks and continued on 800,000 units daily for a total of six months)	IV penicillin was given 1 megaunit 6 hourly for 23 days, and then oral penicillin 2 megaunits daily for 10 days	Cephalexin for 4 months	Penicillin G 10 million units per day for 40 days f
Outcome	Full recovery	complete resolution and a normal repeat tomogram	Full recovery	full recovery

Batur çalis and al		***L. Artesi and al***	***G. Lozano and al***	***M.A. Syed***	***M. Yasuda and al***	***S.H. Fernandez***	***M. Moreno and al***
2006		2006	2004	2001	2000	1999	1997
Turkey		Italy	Spain	United Kingdom	Japan	Asia	Spain
2		1	1	1	1	1	1
45/M	66/M	75/M	53/M	74/M	53/M	30/F	52/F
right ventricle and both vocal cord	Left hemilarynx + anterior commissure+ right vocal cord and the right ventricle	Epiglottis + left aryepiglottic fold	Vocal cord	vocal folds and arytenoids + post cricoid space	Anterior commissure	Vocal cord (secondary pulmonary localization)	Posterior commissure and vocal cord
Smoking + Concurrent carcinoma with radiotherapy treatment / hoarseness, dyspnea and dysphagia	Smoking/ hoarseness and dyspnea	Smoking + alcohol / 2-month history of worsening dysphagia complicated by slight dyspnea	Smoking/ Dysphonia	course of radical radiotherapy for a T1N0M0 squamous cell carcinoma of his left vocal fold / a two-month history of dysphonia and progressive dysphagia	T cell leukemia / Dysphonia	None/ Dysphonia for 02 months	Diabetes/ hoarseness and Cough
Total laryngectomy (TL) + bilateral modified radical neck dissection (MRND) type 3 + primary voice restoration + palliative chemotherapy (carcinoma od esophagus)	Total laryngectomy (TL) + bilateral modified radical neck dissection (MRND) type 3 + primary voice restoration	IV penicillin (5 MIU/ die) for 15 days followed by oral treatment with clindamycin (600 mg) for 4 months	Penicillin 600,000 units orally every 6 hours for 3 weeks	amoxycillin 500 mg three times daily (malignancy have been excluded by biopsies and histological examination)	Penicillin 20M IU daily for 35 days	IU penicillin for 06 weeks	Cefuroxime-axetil 250 mg twice a day for 3 weeks
Still alive during follow-up with oncology department	no evidence of recurrence of laryngeal carcinoma (LC) or actinomycosis.	Full recovery confirmed after 7 months follow-up	Full recovery	Slow but satisfactory recovery	Good response to treatment	Full recovery	Resolution of symptoms

M. Wierzbicka and al	***M. Meidani and al***	***B. Khademi and al***	***R. Schumann and al***	***M. Sari and al***	***H.S. Sims ans al***	***Sara and al***	***M.C. Menezes***
2012	2011	2011	2010	2007	2007	2006	2006
Poland	Iran	Iran	Germany	Turkey	USA	USA	Brazil
1	1	1	1	1	1	1	1
22/M	77/M	14/M	56/M	21/M	47/M	69/M	77/M
Epiglottis, aryepiglottic folds and postcricoid region	Larynx+ lung	Vocal cord	Aryepiglottic fold and pyriform sinus	anterior one-third part of the left vocal cord	posterior glottic tissue	Thyroid cartilage +Trachea (Co-occurrence with a laryngeal carcinoma)	left aryepiglottic fold
None/ discreet dysphagia and weight-loss for several months	Prolonged intubation (heart surgery / Fever, Cough, Weight loss and an unexplicated respiratory failure	Recent tooth extraction/ Dysphonia worsening over 2 months	accidental ingestion of ear of corn / dysphagia	None/ 6-month history of hoarseness of voice	Systemic lupus erythematosus (prednisone therapy) + renal transplantation / hoarseness and dysphagia complicated with increased dyspnea with exertion even under initial treatment	History of smoking + Diabetes/ 8-month history of hoarseness, a 30-pound weight loss, trouble speaking, and a persistent cough	Smoker + alcoholic / mild throat pain for about a year + weight-loss
IV penicillin and clindamycin	High dose of penicillin	IV penicillin for 2 wks. Then PO penicillin for 3 months	Surgical excision of the abscess and amoxicillin and clavulanic acid for 3 weeks	amoxycillin-clavulanate 625 mg orally three times a day for 8 weeks.	IV penicillin for two weeks followed by oral penicillin for three months	Neoadjuvant chemotherapy+ total laryngectomy with extended tracheal resection down to the 8th tracheal ring + IV ampicillin 500 mg every 6 hours for 12 weeks, then PO for 6 to 12 months	antibiotics for 21 days
Full recovery	Full recovery	Full recovery	Good response to treatment	Full recovery	Full recovery	Well response to antibiotics	Full recovery

M. Pujani and al	***V. Manimaran and al***	***Googe and al***	***S. Patel and al***	***F. Lensing and al.***	***T. Abed and al***	***K. Yoshihama and al***	***T. Ferry and al***
2017	2017	2016	2014	2014	2013	2013	2012
India	India	USA	USA	USA	United Kingdom	Japan	France
1	1	1	1	1	1	1	1
28/M	33/M	55/F	74/M	24/M	35/F	49/M	67/M
Anterior commissure	Anterior commissure and anterior one third of both vocal cords	Vocal cord	Vocal cord and Vestibular fold	Cricoid cartilage and adjacent fat pad	Anterior commissure	anterior one-third part of the left vocal cord	Vocal cord and vestibular fold
History of microlaryngoscopic excision of a polyp 7 months before / Hoarseness and change in voice for previous 12 months	NONE / Hoarseness for 03 months	Smoking/ hoarseness and intermittent dysphonia+ pharyngitis	chronic lymphocytic leukemia and febrile neutropenia/ odynophagia and dysphagia	Oropharyngeal trauma/ Acute dyspnea and laryngeal pain 2 days after recent airway dilation	Systemic lupus erythematosus (prednisone therapy) + renal transplantation / Hoarseness	None / hoarseness of voice for 2 years	Smoking+ chemotherapy, lateral pharyngo-laryngectomy was performed, followed by radiotherapy for his Laryngeal carcinoma / Mild dyspnea on rest
Amoxicillin therapy	cotrimoxazole (800/160mg) tablets twice daily for 04 months	amoxicillin 500 mg orally three times per day for one month	Ciprofloxacin and amoxicillin/clavulanic acid for 1° month	IV penicillin 6 weeks	Excision of the abscess and 3-month course of oral penicillin V and referred for speech therapy	amoxicillin-clavulanate 625 mg orally three times a day for 8 weeks	Oral amoxicillin (6 g/day) for 3 months (relapse excluded by biopsies and histological examination)
Good response to treatment	Full recovery	Full recovery	near-complete resolution of his symptoms	resolution of hypermetabolic activity in the larynx on imaging and resolution of the soft tissue mass.	Full recovery	Full recovery	No relapse occurred with full recovery

H. Sei and al	2018	Japan	1	14/F	Right arytenoid of the larynx	Bone marrow transplantation for acute lymphocytic leukemia 4 months before/ sore throat for 02 weeks	Oral amoxicillin 750 mg/day for 70 days	Full recovery
B. Raggio and al	2019	USA	1	93M	Anterior vocal folds bilaterally with anterior commissure	Chronic kidney disease/ 6month history of progressively worsening dysphonia and odynophagia	Renally dose amoxicillin for 03 weeks	Withdraw of treatment after diagnosis of omental carcinomatosis with lung metastasis

CONCLUSION

By presenting an additional case of vocal cord actinomycosis in this paper, we aim to highlight that actinomycotic infections can accompany and/or complicate head and neck carcinomas. The rarity of this combination underscores the importance of considering actinomycosis in patients with laryngeal carcinoma who present with atypical symptoms or complications. Given that actinomycosis can mimic or complicate the clinical picture of laryngeal cancer, awareness of this possibility is crucial for accurate diagnosis and effective treatment. Therefore, we seek to alert clinicians and pathologists to consider the possibility of such rare concurrent actinomycotic infections.

Patient's perspective

I recently had hoarseness along with dysphonia so I went seeing an ENT specialist. In the ORL outpatient clinic, doctor performed a fibroendoscopy and discovered a tumor. I must say that I had intermittent breathing difficulty that I didn't took seriously. I had a CT scan and the ORL told me they had to perform laryngoscopy under general anesthesia in order to take biopsies. My pathology results showed cancer with an infection for which my doctor prescribed antibiotics for 8 weeks. I refused surgery for my cancer, so my doctor referred me to an oncologist. I had radiation therapy and since then, my breathing and hoarseness had improved and my doctors confirmed that I am actually cancer free.

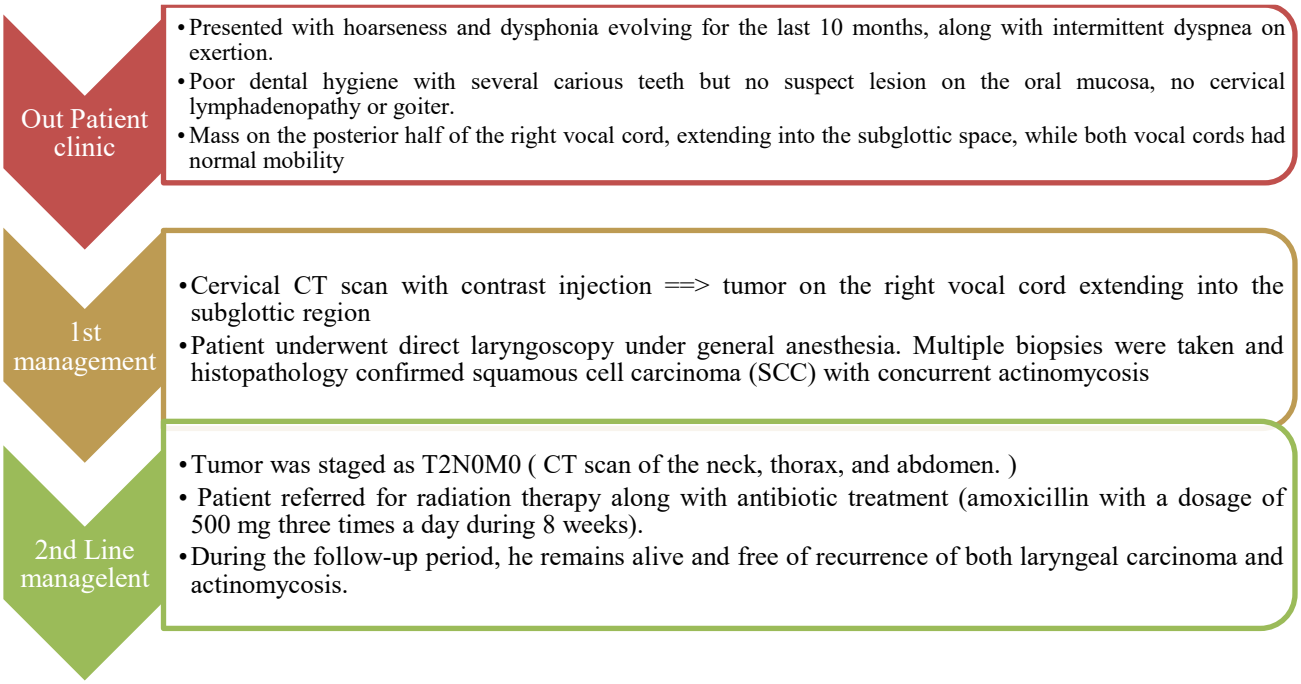

Figure 5: Patient's case management timeline

Declarations:

Ethics approval and consent to participate:

The IRB approved our study and consents to participate to the study were signed by the patients. Our IRB is CEHUF (comité d'ethique hospital-universitaire de Fès).

Funding: not applicable

REREFENCES

1. Smego RA, Foglia G. Actinomycosis. Clin Infect Dis 1998 ;26(6):1255– 1261.
2. Valour F, Sénéchal A, Dupieux C, Karsenty J, Lustig S, *et al.,* (2014) Actinomycosis: etiology, clinical features, diagnosis, treatment, and management. Infect Drug Resist 7: 183-197.
3. Belmont MJ, Behar PM, Wax MK (1999) Atypical presentations of actinomycosis. Head Neck 21: 264-268.
4. B. Khademi, S. H. Dastgheib-Hosseini, and M. J. Ashraf, "Vocal cord actinomycosis: a case report," Iranian Journal of Otorhinolaryngology, vol. 23, no. 2, pp. 49–52, 2011.
5. Benjamin G, David K, Kim G, John S (2016) Laryngeal Actinomycosis: A Case Report and Systematic Review of 32 Cases in the Literature. J Otolaryng Head Neck Surg 2: 006.
6. Rankow RM, Abraham DM. Actinomycosis: masquerader in the head and neck. Ann Otol Rhinol Laryngol 1978;87(2 Pt 1):230–237.
7. I. Zajc, Z. Orihovac, and M. Bagatin, "Temporal actinomycosis: report of a case," Journal of Oral and Maxillofacial Surgery, vol. 57, no. 11, pp. 1370–1372, 1999.
8. A. Batur Calis, A. E. Ozbal, T. Basak, and S. Turgut, "Laryngeal actinomycosis accompanying laryngeal carcinoma: report of two cases," European Archives of Oto-Rhino-Laryngology, vol. 263, no. 8, pp. 783–785, 2006.
9. H. S. Sims and B. B. Heywood, "Post-transplant actinomycosis of the posterior glottis involving both vocal processes," Otolaryngology—Head and Neck Surgery, vol. 137, no. 6, pp. 967– 968, 2007.
10. Keisuke Yoshihama, Yasumasa Kato, and Yuh Baba, Vocal Cord Actinomycosis Mimicking a Laryngeal Tumor, Case Reports in Otolaryngology Volume 2013, Article ID 361986, 2 pages http://dx.doi.org/10.1155/2013/361986
11. Mukta Pujani, Sabina Khan, Sujata Jetley and Seema Monga, Laryngeal actinomycosis with dysplasia in a young male with a recurrent laryngeal polyp, Tropical doctor 0(0) 1–3, 2017, DOI: 10.1177/0049475516688161
12. Ferry T, Buiret G, Pignat J-C, Chidiac C. Laryngeal actinomycosis mimicking relapse of laryngeal carcinoma in a 67-year-old man. BMJ Case Reports 2012;10.1136/bcr-2012-007084
13. Hughes RA, Paonessa DF, Conway WF (1984) Actinomycosis of the larynx. Ann Otol Rhinol Laryngol 93:520–524
14. Carpenter JL, Artenstein MS (1976) Use of diagnostic microbiologic facilities in the diagnosis of head and neck infections. Otolaryngol Clin North Am 9(3):611–629
15. Syed MA, Ayshford CA, Uppal HS, Cullen RJ (2001) Actinomycosis of the post-cricoid space: an unusual case of dysphagia. J Laryngol Otol 115:428–429
16. Pillsbury HC, Sasaki CT (1982) Granulomatous diseases of the larynx. Otolaryngol Clin North Am 15(3):539–551