

## The forgotten disease — Lemierre's syndrome

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### Abstract

Lemierre's syndrome refers to septic thrombosis of deep veins of the neck, is a rare and often life threatening complication following upper respiratory tract infections. We present here a case of Lemierre's syndrome in a previously healthy 30 years old female who had a febrile illness for two weeks with associated dysphagia, hoarse voice and right sided neck swelling. She was investigated for retropharyngeal and parapharyngeal abscess, granulomatosis with polyangiitis, tuberculosis and thyroiditis but finally concluded as Lemierre's syndrome based on the findings of thrombosis of the deep neck veins following respiratory tract infection, septic pulmonary emboli and clinical recovery with antibiotics and supportive care. Lemierres syndrome can be fatal if diagnosis and treatment is delayed. Strong clinical suspicion leads to early diagnosis and may prevent life threatening organ dysfunction.

**Keywords:** Lemierre's syndrome, Internal jugular vein thrombosis, Gram negative septicemia, necrobiosisfusodobacterium, Forgotten disease.

### Introduction

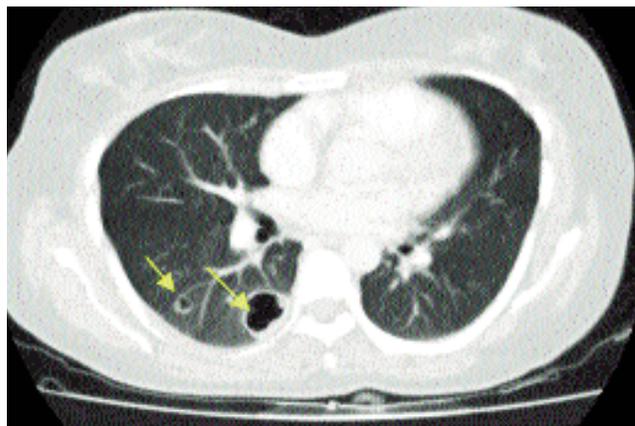
Lemierre's syndrome was first reported by Lemierre in 1936 who described a series of 20 patients, 18 of whom died.<sup>1</sup> Lemierre's syndrome also called postanginal septicaemia and "the forgotten disease" as many physicians are unaware of the disease is thought to be caused by the gram negative bacteria - *Fusodobacterium Necrophorum* (FN).<sup>2-4</sup> Other bacteria like streptococcus and staphylococcus aureus have also been documented to be the causal agents.<sup>5</sup> FN is a normal flora of the oral cavity, genital tract and the gastrointestinal tract. This case report highlights the morbidity associated with Lemierre's syndrome and the management problems arising during the course of illness especially when vital organs are involved.

### Case Report

A 30 years old married female, resident of Muzaffarabad, was referred from a local hospital in the

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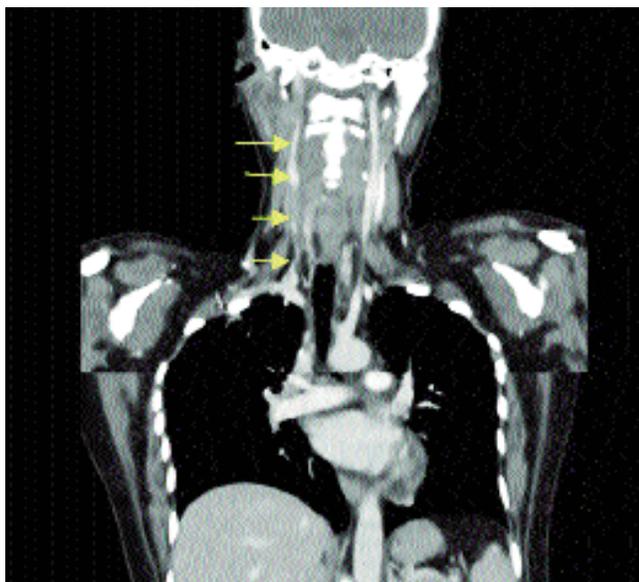


**Figure-1:** CECT showing lung cavitations (yellow arrows) in a patient with Lemierre's syndrome.

Department of General Medicine, Pakistan Institute of Medical Sciences, Islamabad, in January 2016. There was two weeks history of right sided neck swelling associated with high grade fever, dysphagia, dysphonia and difficulty in opening her mouth. Neck swelling gradually increased over the two weeks period and involved the right side of the face as well. Fever was high grade documented as 40°C and was treated with intravenous antibiotics but the fever persisted. Despite treatment her condition kept on deteriorating after which she was referred to our hospital (a tertiary care hospital). Dysphagia was predominantly because of limitation in jaw movements and opening the mouth although she could swallow sips of water. When she was received in the emergency, she was obtunded, markedly dehydrated, febrile with an axillary temperature of 39.4°C, pulse of 112/min, Respiratory rate of 26/min and Blood Pressure of 100/60 mmHg. She was moderately icteric, had left subconjunctival haemorrhage, mild right sided facial and neck swelling with raised temperature and mild erythema. Oral cavity was full of purulent secretions dribbling out. Posterior pharynx and voice could not be evaluated at that time. Thyroid was mildly enlarged. Chest revealed scattered crepitations. There was no synovitis of any joint and no rash. Neurological examination did not reveal any focal deficit. Abdominal examination was unremarkable except for mild splenomegaly. She was investigated for



**Figure-2:** CECT showing bulky parotid on the right (yellow arrow) in Lemierre's syndrome.



**Figure-3:** CECT showing right jugular vein thrombosis (yellow arrow).

septicaemia secondary to upper respiratory tract infection and possibly complicated by a parapharyngeal/ retropharyngeal abscess. Investigations revealed leukocytosis (TLC: 18100/ul with 86.6% neutrophils, and thrombocytopenia (97000/ul), Bilirubin was 7.64 mg/dl with normal transaminase

levels, urea of 447 mg/dl, creatinine 8.25 mg/dl and sodium of 157 mEq/L. Chest X ray revealed lung cavitations.

She was managed with intravenous cefoperazone and sulbactam, intravenous hydration with normal saline, prophylactic heparin and proton pump inhibitors. Ultrasound of the neck revealed thrombosis of the internal and external jugular vein, the retromandibular and thyroid vein. In view of septic thrombosis, anaerobic cultures were advised but were found to be negative. Her cefoperazone dose was increased to 6 gm/day, vancomycin was added but stopped early because of rising creatinine. Because of the dysphagia and an episode of haematemesis and hoarseness of voice her barium studies and oesophago-gastro-oduodenoscopy were done but were unremarkable except for hyperaemic and edematous whole gastric mucosa in mosaic pattern with haemorrhagic spots. Prophylactic heparin was also stopped after the episode of haematemesis. Indirect laryngoscopy revealed right vocal cord paralysis. Contrast enhanced computed tomography (CECT) was planned but delayed due to renal dysfunction. CECT later revealed lung cavitations, parotid and retromandibular stranding without any local collection as seen in Figure-1 and Figure-2. CECT confirmed Internal Jugular vein thrombosis (Figure-3). Because of deranged renal functions, proteinuria, haematuria and lung cavitations, she was investigated for vasculitis but her ANCA (antineutrophilic cytoplasmic antibodies) profile, transthoracic echocardiography and complement levels were found to be normal. Her investigations for tuberculosis was also negative. Thyroid scan revealed mildly enlarged thyroid with diffuse uptake. Portal vein Doppler was done but was normal. Since the patient recovered remarkably she was discharged on oral amoxicillin-clavulanic acid and rivaroxaban 10 mg per day with the diagnosis of Lemierre's disease. Patient was explained in detail about the disease especially about the status of jugular vein patency which could lead to long term morbidity and the need for long term anticoagulation. Problems with anticoagulation (especially hazards of bleeding) were also discussed. For documentation of jugular vein patency she was asked to come for follow up after four to six weeks. On follow up after six weeks patient was completely asymptomatic, indirect laryngoscopy revealed mobile vocal cords bilaterally and Doppler ultrasound of the neck showed only partial recanalization. Patient denied any adverse effects related to rivaroxaban. Patient was advised to continue rivaroxaban for another six to nine weeks and

to be followed with a repeat Doppler ultrasound of the neck.

## Discussion

Lemierre's syndrome or postanginal septicaemia is characterized by septic internal jugular and deep neck veins thrombosis preceded by a history of pharyngitis or tonsillitis. Thrombophlebitis occurs at the primary site of infection and it gradually involves the surrounding deep neck veins especially the internal jugular vein. These septic thrombotic plaques are very friable and is frequently accompanied by metastatic abscesses. The most frequent site of distant metastasis is the lungs (upto 95% of patients) and is characterized by cavitations, empyemas and infarcts.<sup>6</sup> Other sites include hepatic, splenic and brain abscesses which is associated with high mortality and morbidity.<sup>5</sup>

As in our case, patients with Lemierre's syndrome are usually young adults in their twenties and thirties. There is no sex predilection. Patients present with simple oropharyngeal infections which if not treated well on time advances to the aggressive form of the disease involving the deep veins and distant septic emboli. Because of the frequent antibiotics use Lemierres disease has become very rare and diagnosis is usually delayed since physicians are unaware of the disease hence the term "the Forgotten disease". Lemierre's disease should always be suspected in patients with oropharyngeal infection who have persistent fever despite antibiotics and especially in patients with associated unilateral or bilateral neck swellings. In one study about 67% of the patients were diagnosed with Lemierre's disease after their blood culture grew FN. The criteria for the diagnosis of LS are not clearly defined. Riordan et al proposed the following three diagnostic criteria on the basis of their examination of many LS cases: (i) history of throat angina in the preceding 4 weeks or compatible clinical findings, (ii) history of metastatic septic emboli, and (iii) evidence of IJV thrombophlebitis or isolation of *Fusobacteriumnecrophorum* or *Fusobacterium* species from blood cultures or a normal sterile site.<sup>7</sup>

Our patient presented primarily with oropharyngeal exudation and septicaemia. She had extensive local involvement of the disease with involvement of the oropharynx (manifested with dysphagia and difficulty in opening mouth), larynx (manifested by cough and hoarseness) with right vocal cord paralysis. Vocal cord paralysis was a little unusual for us as we did not find a case report of Lemierres disease with vocal cord paralysis and hence other diagnosis like vasculitis and

granulomatosis with polyangiitis were also considered in the differential diagnosis and excluded appropriately.

Internal jugular vein thrombosis along with thrombosis of the deep neck veins was confirmed in our patient on Doppler and duplex ultrasound as well as CECT of the neck. Septic jugular vein thrombosis is the cardinal feature of Lemierre's disease. Treatment is debatable and anticoagulation is thought to have very little role in the management. Our patient was initially given heparin in low doses because of renal dysfunction but was stopped early because of haematemesis. Endoscopy later revealed hyperaemic gastric mucosa and suggestion was made to investigate for portal hypertension but her ultrasound and Doppler of the portal vein was unremarkable. The haematemesis was attributed to stress induced gastritis in the background of renal dysfunction and precipitated by unfractionated heparin.

Among distant metastasis in Lemierres syndrome, pulmonary metastasis is thought to be the most common varying from 67 to 100 percent.<sup>7</sup> Our patient also had lung cavitations and infiltrates as well as nodular opacities. Lung involvement can progress to ARDS which is associated with very high mortality.

Hepatic and splenic abscesses have also been reported.<sup>8</sup> Our patient had splenomegaly but there was no evidence of any collection in the liver or spleen.

Our patient had markedly deranged renal profile which was thought to be part of septicaemia as well as marked dehydration secondary to markedly reduced intake since with hydration there was prompt clinical recovery.

## Conclusion

Lemierres syndrome is a rare life threatening and major organ threatening disease. A strong clinical suspicion is required to diagnose Lemierres syndrome especially when patient has persistent fever despite treatment with neck swelling and preceding oropharyngeal infection. Supportive care with hydration and proper antibiotics may be life saving if started early in the course of illness.

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**Competing Interests:** The authors declare that they have

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