Situs Inversus Totalis Complicated With Left Middle Lobe Lung Abscess

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Abstract : Situs inversus totalis is very rare anatomical condition found in 1 in 10,000 subjects. Here we describe the case of left middle lobe lung abscess with situs inversus totalis in 60 year old Sikh male presented with high grade fever with chills , cough with copious production of foul smelling sputum. [Agrawal A et al NJIRM 2013; 4(2) : 178-180]

Key Words: Situs inversus totalis, Lung abscess

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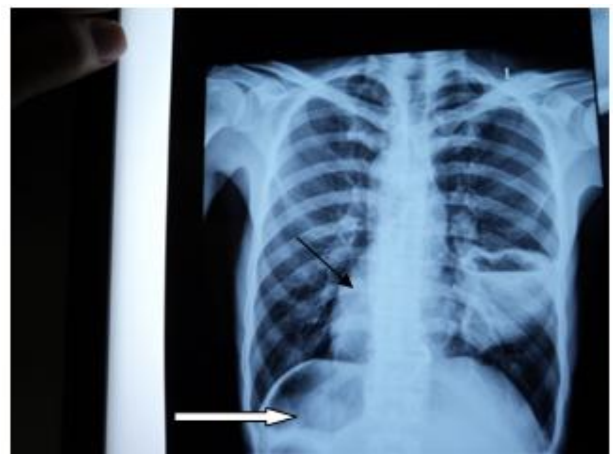
Introduction: Situs inversus is a rare congenital anomaly in which the major visceral organ with heart are reversed or mirrored from their normal position. Prevalence varies among different population around 1 / 8000 to 1/25,000 subjects[1] ,further it can be total or incomplete in less than 10% of all cases[2]. It is a X linked autosomal recessive[3] condition caused by mutation in gene encoding axonemal heavy dynein -11[4]. The present case is rare type of situs inversus totalis also called situs transverses [5] complicated with left middle lobe lung abscess, due to necrosis of pulmonary tissue and formation of cavities containing necrotic debris caused by microbial infection[6]. In present case the middle lobe of left lung involved predominantly due to mirror image of right lung over left side which is extremely rare presentation

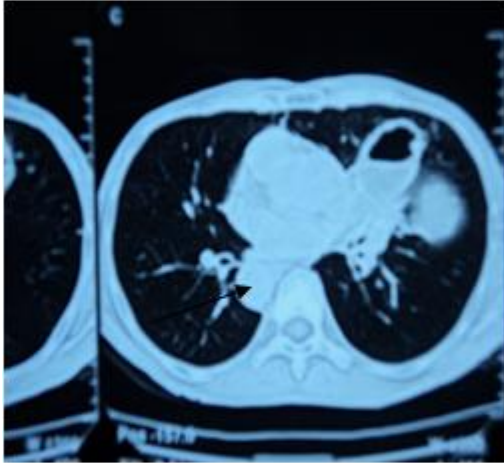
Case Report: A 60 year old Sikh male presented with chief complaints of cough with expectoration ,fever with chills& rigor, chest pain over left hemi thorax non radiating,for last 2 weeks. He was also having mild dysphagia, sputum was copious in amount, yellowish green foul smelling and was not associated with blood. As per patient information production of sputum increase in right lateral decubitus . He was non smoker but alcoholic for last 20 years. There was no h/o Diabetes Mellitus, Hypertension or Renal failure but he was treated for carcinoma pyriform fossa one year back which was proven by biopsy taken from same site and also received radiotherapy and treated successfully , but still he have mild difficulty in deglutination .On investigation Hb 10.3g%,Total leucocyte count raised 15,400/dl with 82 % polymorph, ESR increased ,with positive c –reactive protein, AST,ALT slightly raised, S.Bilirubin normal, renal function and Urine routine/ microscopic with in normal limit. Sputum smear and culture was negative for AFB, Elisa for HIV 1,2,HbSAg and Elisa for HCV negative .Gram positive cocci and negative bacilli detected in sputum , on culture heavy growth of klebsella sp. reported, no fungal hyphe in smear as well as in culture, sputum was also negative for malignant cell. ECG with in normal limit, Skiagram of chest in PA View shows rounded homogenous opacity in left middle zone with air fluid level ,along with this cardiac shadows and aortic knucle appear over right side, gas under diaphragm can also appreciated over same side. (fig. 1)

Fig.1 Skiagram of chest in PA view shows left middle lobe abscess with situs inversus.



CECT thorax clearly revealed that the abscess present in left middle lobe with dextrocardia and position of ascending aorta towards right side and descending aorta present adjacent to right side of vertebral body , no sign of mass lesion or hilar lymphadenopathy observed (fig. 2) .

Fig.2.CECT Thorax shows left middle lobe abscess with right sided descending aorta.



USG abdomen shows completely reversal of major visceral organ , like liver present over left side with gall bladder having two (16mm, 9mm)stone and right sided presence of stomach and spleen. The patient was treated for lung abscess in our department and improved after two weeks of hospital stay. Then he was discharged with necessary advise and treatment and referred to surgery department for gall stone .Present case is a unique presentation of lung abscess in middle lobe of left lung with situs inversus totalis.

Discussion: Situs inversus totalis is a rare congenital anomaly with an incidence in population of only 0.001% to 0.01%with male to female ratio 3:2[7] ' **Mathew Baillie**[8] first described situs inversus totalis in the early 20th centuary. Recently significant advancement in understanding the possible molecular pathway were made ,suggesting that mutation affecting CCDC11 and DNAH11 gene with mutation in TGF-β family gene and transcription factor HNF-3 β have a significant role in process[1].It was also suggested that the immobility of nodal cilia inhibits the flow of extraembrionic fluid during the embryonic period and this lead to the development of situs inversus [7].Present case is extremely rare due to presence of abscess in left middle lobe. Aspiration consider as most common cause of lung abscess specially in alcoholic subjects. Usually in sitting position the common aspiration site is either right lower lobe or left lower lobe, and will account 85% of lung abscess .In between two , the basal segment of right lower lobe is the most common site in this position[6], because right main bronchus is in straight line with trachea rather left bronchus .In supine posture superior segment of Right lower lobe is the most dependent segment , in the same way right upper lobe is the dependent site of aspiration in right lateral decubitus, it is very unlikely of any anterior segment like, middle lobe , lingular lobe to be site of aspiration lung abscess[9]. Probable cause of lung abscess in these rare site like in present case due to either partial airway obstruction or trouble with deglutination. In present case involvement of middle lobe due to mirror image of right lung over left side and patient was also alcoholic as well as having difficulty in deglutination .As per Author's knowledge, it is the first case report of left middle lobe lung abscess with situs inversus totalis.

Conclusion: Although It is very rare condition but we should always keep in mind if the patient with this kind of anatomical variation having ailment related to vital organs which are not at its usual site makes the clinician in trouble during routine examination process and also like to sensitize physicians as well as radiologist about this congenital anomaly during diagnosis of the patient.

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