



## A Case Report of Septic Pulmonary Embolism

Authors

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### Abstract

*Septic pulmonary embolism (SPE) is one of the uncommon disease where septic thrombi get mobilized from infectious site through vascular system of lungs. The common causes of septic pulmonary embolism are central venous infections, venous thrombophlebitis, iv drug abuse and dental abscess. Most of the cases were associated with infective endocarditis (IE) of the tricuspid valve. But any infection can spread into the lungs. Here we present a 20 year old female patient presented with septic abortion developed septic pulmonary embolism and IE of the tricuspid valve. The causative organism was methicillin resistant staphylococcus aureus and improved with antibiotics and supportive care.*

**Keywords:** Pulmonary embolism, sepsis, infective endocarditis.

### Case Report

A 20 year old female presented to us with complaints of fever for 7 days duration with loose stools 5 to 6 episodes per day for 5 days and discharge per vaginum for 7 days - minimal and foul smelling. Patient gives history of termination of pregnancy at 3 months gestation by curettage by a quack 7days back, after which she developed the symptoms. Patient is married and has 2 children. Menstrual history normal.

On examination Patient was conscious and oriented, tachypneic and dehydrated, febrile – temp 103 F, pallor ++, pulse – 136/ min low volume and BP – 80/50 mm Hg. Systemic examination revealed no abnormalities. The patient was admitted with the diagnosis of septic abortion in septic shock.

Her complete haemogram revealed anemia with

severe thrombocytopenia (haemoglobin – 6.8 g%, total leukocyte count – 8300/ cumm with neutrophil predominance 80% and platelet count – 51000/ cu mm.). Her blood glucose, renal function tests, liver function tests and serum electrolytes were normal.

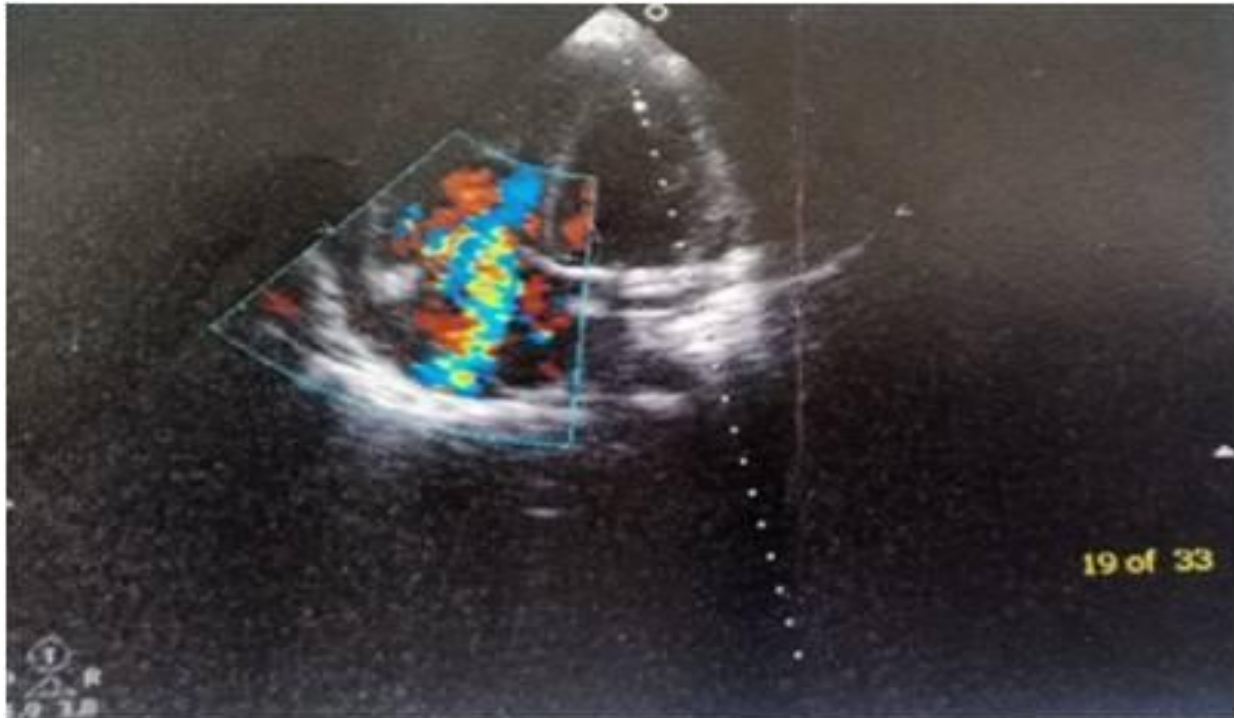
ECG showed sinus tachycardia, echocardiography was normal and chest X ray normal. Patient was started on iv fluids, inotrope support and iv antibiotics (imipenam and metronidazole) after sending blood, urine and vaginal cultures. Her ultrasound abdomen revealed bulky uterus with retained products of conception. Obstetrician opinion was obtained and dilation and curettage was done on day 3 of admission. Anemia was corrected with blood transfusions.

After 5 days of intensive care treatment patient had persistant fever spikes with increasing

breathlessness. Her systemic examination revealed a systolic murmur in the tricuspid area and few scattered bilateral crepitations. A repeat echocardiography revealed a vegetation attached to the tricuspid leaflet protruding into the right atrium suggestive of infective endocarditis with severe tricuspid regurgitation. A HRCT Chest was done and it showed bilateral nodular infiltrates along the feeding vessels with wedge shaped

peripheral opacities – septic pulmonary embolism. A repeat 3 blood cultures done and 2 out of 3 revealed staphylococcus aureus, similar to the vaginal swab culture also showed positive for staphylococci. Patient was started on inj. Vancomycin 1g IV twice daily and other supportive measures given. After another 5 days of intensive care treatment patient gradually improved. Antibiotic was continued for 4 weeks.

**Fig 1:** ECHO showing features of tricuspid regurgitation



**Fig 2:** CT image showing features of pulmonary embolism



## Discussion

Septic pulmonary embolism (SPE) is a rare disease without any specific clinical presentation. Any infection in the body can spread through the venous system into the pulmonary vasculature causing septic pulmonary embolism. It is a highly fatal disease and early diagnosis and management plays a major role in patient's outcome.

Various studies on SPE suggest that right sided infective endocarditis, septic thrombophlebitis, central catheter, soft tissue infections and periodontal diseases are common sources of emboli. A study of SPE suggested that tricuspid valve infective endocarditis (etiology commonly being i.v drug abusers) was the most common cause of SPE followed by liver abscess and soft tissue infections. There are few case reports of SPE due to dental abscess and oral infections. The Lemierre syndrome (thrombophlebitis of the internal jugular vein) can also lead to septic pulmonary emboli. In our patient the septic foci from the uterus (septic abortion) spread through the venous channels to cause a tricuspid valve infective endocarditis and finally septic pulmonary embolism.

SPE occurs when infectious agents in fibrin rich thrombi spread through circulation into the pulmonary vasculature. Patients may present with an insidious onset of fever, cough, breathlessness or haemoptysis. But these features are not specific. Our case had persistent fever spikes with breathlessness. Also she had a new onset of tricuspid regurgitation murmur which lead us to suspect SPE. Crepitations may be present in the lung fields. So a high degree of clinical suspicion judgement is required to identify SPE. Most of the case reports and studies on SPE have shown that staphylococcus aureus as the commonest pathogen followed by klbsiella.

Diagnosis is by imaging studies, a chest x ray may be used but most of times haven nonspecific findings. A Computed tomography of the chest is the gold standard and diagnostic. Chest radiographs reveal peripheral bilateral poorly

marginated lung nodules and cavities with thick irregular walls. Nodules vary in size from 1 to 3 cm. CT findings in septic pulmonary emboli had been described in various articles. Multiple peripheral nodules are found in most of the cases in several articles with a feeding vessel. The next common finding was wedge-shaped peripheral lesions abutting the pleura. Cavity formation and pleural effusion were also noted. Our patient had most of these findings.

Blood cultures are needed for the bacterial identification and as in most cases our patient also was positive for staphylococci infection.

Treatment with antibiotics often for longer duration is required to completely eradicate the infection. Also the primary foci of infection should be dealt. With using higher antibiotics the mortality of SPE has greatly been reduced. There is no role for anticoagulants in SPE. Only very few patients require intercoastal tube drainage for empyema.

To conclude prompt clinical examination and early diagnosis plays a major role in the improvement of patients with septic pulmonary embolism. Our patient developed septic pulmonary embolism due to septic abortion.

## References

1. Wong KS, Lin TY, Huang YC, Hsia SH, Yang PH, Chu SM. Clinical and radiographic spectrum of septic pulmonary embolism. Arch Dis Child. 2002; 87: 312-5.
2. Por-Wen Y, Kuan-Hung L, Jen-Dar C, Chui-Mei T, Hong-Da L. Septic Pulmonary Embolism: Analysis of Twenty-Eight Cases. J Intern Med Taiwan. 2013; 24: 1-7.
3. Fatma F1, Murat A2, Mehmet U1, Zafer C, Alpay H.Murat S. Septic pulmonary embolism following infection of peripheral intravenous canula. Eur J Gen Med. 2006; 3(3):132-135
4. Cook RJ, Ashton RW, Aughenbaugh GL, Ryu JH. Septic pulmonary embolism:

- presenting features and clinical course of 14 patients. *Chest*. 2005; 128: 162-6.
5. Yang PW, Lin HD, Wang LM. Pyogenic liver abscess associated with septic pulmonary embolism. *J Chin Med Assoc*. 2008; 71: 442-7.
  6. Shiba E, Kambayashi J, Sakon M, et al. Septic pulmonary emboli after prolonged use of central venous catheter for parenteral nutrition. Case report. *Eur J Surg*. 1992;158:59-61.
  7. Shiota Y, Arikita H, Horita N, et al. Septic pulmonary embolism associated with periodontal disease: reports of two cases and review of the literature. *Chest* 2002;121:652-654.
  8. Kuhlman JE, Fishman EK, Teigen C. Pulmonary septic emboli: diagnosis with CT. *Radiology* 1990;174:211-3.
  9. Iwasaki Y, Nagata K, Nakanishi M, et al. Spiral CT findings in septic pulmonary emboli. *Eur J Radiol* 2001;37:190-4.