Abstract
Dengue fever (DF) is an outbreak prone viral disease transmitted by aedes mosquitoes. It is often associated with evidence of plasma leakage due to increased vascular permeability manifested by pleural effusion, ascites, hypoproteinaemia and pericardial effusion. Cases of small pericardial effusion have been reported in association with dengue fever, largely with dengue haemorrhagic fever (DHF) during epidemic outbreaks. Dengue may rarely present with cardiac tamponade as early manifestation and urgent pericardiocentesis is life saving. A 34 year old male presented with low grade fever, headache, myalgia and breathlessness. Echocardiography revealed large pericardial effusion with right ventricular diagnostic collapse requiring urgent drainage. Subsequently patient improved. Dengue serology (both IgM and IgG) was reported as markedly elevated supporting a diagnosis of classic dengue fever.

Introduction
Dengue fever (DF) is the most prevalent mosquito-borne viral disease worldwide caused by an RNA virus of the genus Flavivirus. With the increased globalisation and international travel, climate changes and rapid urbanisation with substandard living, the geographic distribution of DF has increased worldwide in recent decades. Currently the disease is endemic in major parts of the world. Since dengue fever shows evidence of plasma leakage due to increased vascular permeability, therefore pleural effusion, ascites and pericardial effusion not uncommon in DHF as a part of severe capillary leakage syndrome. Rarely it may present with pericardial effusion leading to cardiac tamponade. Pericardiocentesis may be life saving. Here one such case is reported.

Case Report
A 34 Year old male presented with complaints of fever low grade without chills and rigor, headache and myalgia for 4 days followed by difficulty in breathing which was progressively increasing. He was nonsmoker, nondiabetic, nonhypertensive with no past significant history of any cardiac disease. There was no evidence of bleeding from any site at the time of presentation.

Examination: The man was conscious, alert. He has tachypnoea, tachycardia. Neck veins were full. Vital signs were blood pressure 90/70 mm Hg, respiratory rate 28/min, heart rate 110/min, and oral temperature 99.6°F. Bilateral pedal oedema was present. Bilateral basal crepitations were present on chest examination. Cardiovascular examination revealed tachycardia and muffled heart sounds.

Investigations: His Hb was 12.4 gm%, TLC 6700/cmm, Platelet count 42000/cmm, ESR was normal. Hepatic panel assay, cardiac enzyme assay and coagulation assay were all within normal range. Chest X-ray revealed cardiomegaly (CT ratio- 70%) with perihilar haziness. ECG has evidence of low voltage QRS complexes in all leads. Echocardiography revealed large pericardial effusion with right ventricular diagnostic...
collapse (Figure 1). Subsequently Dengue serology was reported as markedly elevated, supporting a diagnosis of classic Dengue Fever (both immunoglobulin M [IgM] titer 2.93 and IgG titer 12.13 by enzyme-linked immunosorbent assay [ELISA]; reference range: < 0.90 for both).

**Management:** Patient was kept under symptomatic support and continuous monitoring. Pericardiocentesis was planned, but it was postponed due to falling trends in platelets count. But due to further deterioration of clinical status pericardiocentesis was done with supports of platelets transfusion and 1500 ml of straw-coloured pericardial fluid was removed. Pericardial fluid cytology showed hypocellularity (Figure 2). Further analysis of pericardial fluid was negative for tuberculosis, bacterial species, and malignancy. The patient improved clinically and repeated echocardiography done after 3 days revealed significant decrease in pericardial effusion and absence of diastolic dysfunction. During the hospital course, the platelet count improved and the patient was discharged home and has been followed up as outpatient.

**Follow-up:** At one month follow-up there was no evidence of pericardial effusion.

**Discussion**

Dengue fever is listed among the 40 emerging disease of global importance afflicting humanity in terms of morbidity and mortality. Currently the disease is endemic in major parts of the world. In recent years dengue has become one of the major public health concerns in India. The diagnosis of DF in this case was established based on the presenting history of fever, myalgia, headache and laboratory evidence of thrombocytopenia supported by elevated serological titers of DF.

The clinical manifestations of DF range from asymptomatic fever, DF to DHF with shock syndrome. Classic DF is an acute febrile illness of 2-7 days with two or more of the following manifestations—headache, retro-orbital pain, myalgia, arthralgia, rash, haemorrhagic manifestations. Haemorrhagic manifestations can be frequently seen with DF, with reported incidence ranging from 10% to 50% and need to be differentiated from DHF. Dengue haemorrhagic fever is the most extreme manifestation of the DF, which can rapidly progress to circulatory failure and shock (dengue shock syndrome). World Health Organisation (WHO) has defined 4 cardinal features of DHF as follows: (1) increased vascular permeability as evidenced by haemoconcentration, pleural effusion or ascites, (2) marked thrombocytopenia (platelet < 100000 cells/mm³), (3) fever lasting 2 to 7 days, and (4) a haemorrhagic tendency (as evidenced by a positive tourniquet test) or spontaneous bleeding. Contrary to the term DHF, plasma leakage leading to shock but not the haemorrhage is the most specific feature of severe DF and is most important for clinical management.

However there is lack of study showing that cardiac tamponade developed by a patient with DF in the English literature. Sunil Kumar et al reported the first case of large pericardial effusion with tamponade as a serious potential complication of DF. They found cardiac tamponade in a patient with dengue fever and lupus nephritis. In this study absence of rise in serum ANA titer and hypocellular fluid with lack of inflammatory changes on the pericardial tissue supported the diagnosis of pericardial effusion of viral aetiology over lupus origin.

Setiawan et al found in a paediatric population, 8% of the patients with severe DHF had small pericardial effusion. Venkata Sai et al found that approximately 28% of the patients had pericardial effusion by ultrasound performed between fifth and seventh day from the onset of fever. Of 32 patients who underwent early ultrasound examination (between days 2 and 3 from the onset of fever), none

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**Fig. 1:** 2D Echocardiography: Showing Right Ventricular Diastolic Collapse

**Fig. 2:** Pericardial fluid cytology: showing hypocellular fluid

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of them had pericardial effusion. The information on the severity of DF was lacking in this study. In the healthy volunteer research study, 3 of 12 volunteers who were inoculated with dengue virus developed small pericardial effusion between 10 and 20 days after exposure to the virus, as the clinical symptoms were resolving and defervescence had set in. Although the exact aetiology is unclear, the nonneutralising antibody from previous infection with 1 serotype leads to enhanced binding to secondary infection with the new serotypes. This results in an amplified cascade of cytokines and complement activation, resulting in endothelial dysfunction with capillary leaks, platelet destruction, and haemorrhagic manifestation.

**Conclusion**

In conclusion, we report large pericardial effusion with tamponade as an early complication in dengue fever.

**References**