A 42-year-old lady on combined estrogen-progesterone therapy for dysfunctional uterine bleeding was referred to us for suspected pulmonary embolism following deep venous thrombosis of pelvic and large veins of lower limb. She had right sided pleuritic chest pain and shortness of breath. Clinical examination revealed a heart rate of 120 bpm, blood pressure 110/70 mmHg, loud second heart sound and coarse crackles over right side of chest. Chest X-ray showed non homogenous shadow in right upper zone. Electrocardiogram showed sinus tachycardia, QRS axis of +100°, incomplete RBBB, and S1Q3T3 pattern. Transthoracic echocardiography revealed dilated right atrium, right ventricle and main pulmonary artery. There was mild tricuspid regurgitation with moderate pulmonary artery hypertension (PASP = 42 mmHg). Left ventricular ejection fraction was 65%. Right ventricular systolic function was normal. Contrast enhanced CT thorax showed a wedge shaped lung infarct of right upper lobe, with partially occluding contrast filling defects in right pulmonary artery. She was treated with unfractionated heparin. Next day she developed shock and jugular venous distension. On auscultation, there was an unexpected loud, superficial, squeaky, triphasic friction rub over the left lower parasternal area. Simultaneous echocardiogram revealed a large serpiginous, freely floating mass in right atrium, prolapsing freely to right ventricular inlet across the tricuspid valve. The endocardial friction rub persisted for about 24 h as long as the thrombus was intracardiac and disappeared when the thrombus disappeared from right heart, occluding the proximal left pulmonary artery. She died due to shock awaiting surgery. We highlight that such a rub in a patient with deep venous thrombosis, though rare, may be an important clue to impending pulmonary embolism.
friction rub persisted for about 24 h as long as the thrombus was in transit and when the rub disappeared, simultaneous echocardiography showed the thrombus had migrated to the proximal left pulmonary artery (See Fig. 1D in Image). She underwent inferior vena caval filter implantation to prevent further embolism. She succumbed to shock in 6 h.

Supplementary video related to this article can be found online at http://dx.doi.org/10.1016/j.ihj.2013.06.008.

This case is reported to bring to light, a rare clinical sign – the endocardial friction rub, which mimics the common pericardial rub, but can be well distinguished from cardiac murmurs or plop-like sounds. In our era, they are commonly noted after pacemaker lead placement, which may probably be due to tricuspid insufficiency or by vibration of pacing wire in the chamber. Its disappearance with removal of the pacemaker catheter suggests a mechanical interference with the tricuspid valve apparatus. But non-pacemaker related endocardial friction rub is a rare clinical phenomenon. It has been reported in multiple calcified thrombi (rocks) or calcified myxoma in the right ventricle, where its genesis has been postulated to be due to rubbing of the mass against right ventricular wall or masses rubbing against each other. Endocardial friction rubs are also reported in right atrial myxoma and metastatic tumors to the right heart.

Thrombus during its transit from the legs to the pulmonary arteries is rarely witnessed during echocardiography, but probably under diagnosed in patients with pulmonary embolism. Auscultatory events of serpentine floating right heart thrombi discovered by imaging are scantily reported. Plop-like sound has been reported in right atrial thrombus, behaving like myxoma. Continuous wave Doppler analysis of tumor plop has been evaluated. But endocardial friction rubs or other ‘thrombus sounds’ have not been analyzed yet because of their rarity. Moreover, Doppler evaluation may not be useful in a floating thrombus with varying motion.

This is the first case report of an endocardial friction rub caused by a free floating right heart thrombus during its transit across the tricuspid valve, sequentially documented by echocardiography. We presume that such thrombi, similar to a pacemaker lead, interfere with tricuspid valve apparatus, causing an endocardial friction rub.

Such a friction rub in a patient with deep venous thrombosis, though rare, may be an important clue to impending pulmonary embolism. It mandates immediate echocardiography for confirmation and preparation for surgical embolectomy.

We highlight the importance of bedside auscultation during echocardiography, when a patient is detected to have an incidental thrombus in transit, as it may reveal this rare clinical sign.

**Conflicts of interest**

All authors have none to declare.
REFERENCES


