

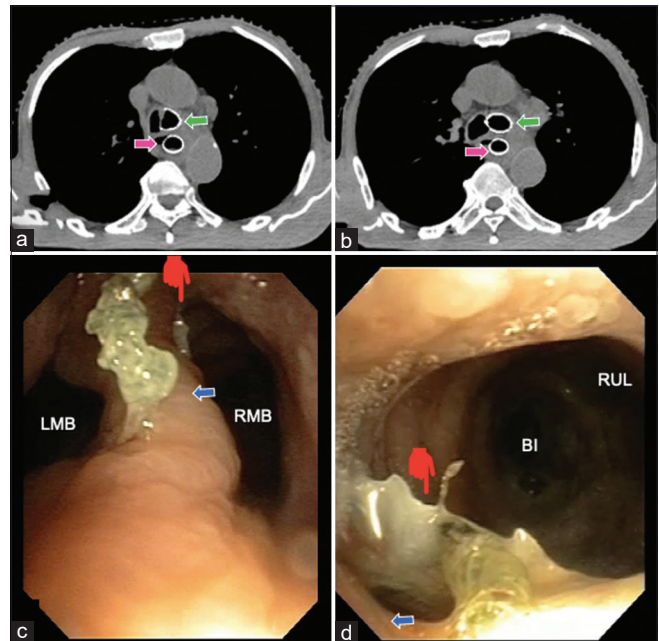
## First report of trans-mediastinal perforation of bilateral main bronchi by a self-expandable metallic stent

Sir,

Although self-expandable metallic stents (SEMS) are effective in palliation of symptoms, stent-related complications are not uncommonly reported in 40%–60% of cases.<sup>[1-3]</sup> The main complications of SEMS include the development of granulation tissue, tumor in-growth, re-stenosis, hemorrhage, migration, infection, and fracture. We report here a rare complication of a SEMS causing perforation of both left and right main bronchi.

A 71-year-old-male was diagnosed as a case of a moderately differentiated squamous cell carcinoma in the mid and lower third of the esophagus with grade III dysphagia and a malignant fistula between the esophagus and left main bronchus (LMB). He underwent covered esophageal SEMS (EXPANSE, 12 cm × 14 mm) placement, and received concurrent palliative chemoradiotherapy. About 3 months later, he presented with complaints of recurrent cough and breathing difficulty especially after consuming liquids. A flexible video bronchoscopy showed a fistula in the posterior membranous wall of the LMB. We sealed the left bronchoesophageal fistula by placing a locally customized fully covered metallic stent (Mitra OTTOMED, 30 mm × 10 mm) with flexible video bronchoscopy. The patient clinically improved as he reported significant palliation of his symptoms after the airway stenting. A surveillance bronchoscopy after 1 month showed excessive granulation tissue formation around the opening of LMB at the proximal edge of the stent which also had eroded across the mediastinum into the right main bronchus (RMB). The sharp edge of the stent was seen protruding into RMB along its medial wall just below the carina which was distorted due to the formation of granulation tissue [Figure 1 and Video 1]. The bronchoscope could be negotiated from the RMB directly into the LMB through the stent across the carina [Video 1]. The patient was advised removal of the stent and placement of a Y-tracheal stent. However, he declined any further intervention and lost to follow-up.

Airway perforation by SEMS causing serious complications such as mediastinal stent migration,<sup>[4]</sup> tracheo-aortic, tracheo-pulmonary artery fistula,<sup>[5,6]</sup> and fatal hemorrhage with tracheoinnominate fistula<sup>[7]</sup> have been rarely reported. Our patient had a trans-mediastinal perforation of LMB and RMB caused by a SEMS placed in the LMB, a complication that has not been reported previously. The propensity for fistula/erosion of the bronchial or tracheal wall due to SEMS as compared to silicon stents might be due to multiple factors such as rigid multiple



**Figure 1:** Chest computed tomography image showing (a) self-expandable metallic stent (SEMS, green arrow) in the left main bronchus (LMB) is seen perforating just below carina into (b) the right main bronchus (RMB), and (a and b) the esophageal stent (pink arrow) is also visible; bronchoscopic view showing (c) the LMB and RMB divided by the carina (blue arrow) which is distorted due to granulation tissue; (c and d) the right edge of the left bronchial SEMS (red hand pointer) is visible just to the right of the carina (blue arrow) in RMB; (d) the openings of right upper lobe bronchus (RUL) and bronchus intermedius (BI) are visible beyond the edge of the SEMS distally in the RMB

edges of SEMS, circumferential pressure on tissues, obstruction by excessive granulation tissue, stent fractures, local inflammation, and mucosal necrosis following radiation.<sup>[4,6,8,9]</sup> Our patient had received radiotherapy. However, there was neither mediastinal lymphadenopathy nor a local tumor invasion which suggests that the perforation of both the airways, in this case, was directly caused by the SEMS.

The guidance of a follow-up bronchoscopy in asymptomatic patients as in our case is less clear. Lee *et al.*<sup>[2]</sup> suggested a surveillance bronchoscopy within 4-6 weeks of stent placement regardless of symptomatic status and indication for stent placement. Our case demonstrates a rare complication of SEMS and highlights that airway stenting should be considered cautiously with a careful follow-up.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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