New Bifurcated Silicone Stent for the Treatment of Posttransplant Bronchus Intermedius Stenosis

New Silicone Stent in Posttransplant Stenosis

To the Editor:

In a recent issue of CHEST (August 2013), Oki and Sakai published their preliminary results with a new dedicated bifurcated silicone stent (Novatech SA) in the management of malignant stenoses around the primary right carina. We report here our initial experience with this “Oki stent” for the treatment of posttransplant bronchus intermedius stenosis.

Given their particular conformation, posttransplant bronchus intermedius stenoses often are difficult to treat effectively. In particular, choosing the right stent to prevent restenosis is an important issue. Silicone Y-stents and Montgomery T-tubes have been used previously with promising results. In both cases, the stents were positioned on the primary right carina, with the upper arm allowing ventilation and drainage of the upper lobe and simultaneously preventing migration. However, the dimensions and angulation of the upper lobe arm do not always fit into the right bronchial tree. According to good preliminary results in patients with cancer, we chose to use the new Oki stent in two patients after lung transplantation.

Grade 4 bronchus intermedius stenoses developed in a 62-year-old woman and a 55-year-old woman 3 and 2 months, respectively, after bilateral lung transplantation for COPD. Before the Oki stent placement, the first patient underwent five rigid bronchoscopy procedures for dilatation, and the second underwent one procedure. Stenting was performed according to the pulling method, allowing correct positioning in both cases. Unfortunately, the stent in the second patient was removed accidentally during a flexible bronchoscopy procedure 1 month later. Given the reoccurrence of the stenosis, a second Oki stent with a longer upper lobe arm was placed to decrease the risk of migration. Both patients experienced immediate symptom relief after stent positioning. Preoperative FEV₁ was 550 mL (33% predicted) for the first patient and 740 mL (33% predicted) for the second, and it increased to 1,050 mL (48% predicted) and 1,500 mL (67% predicted), respectively, 1 week after the intervention. Five months after the procedure, no complications were observed for the first patient. Eight weeks after the second Oki stent placement, the second patient presented with sputum retention and a minimal granulomatous reaction at the distal extremity of the stent. On the basis of this preliminary experience, the new bifurcated silicone stent seems to be a promising and well-tolerated alternative for the treatment of posttransplant bronchus intermedius stenosis.

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References


Response

To the Editor:

We thank Dr Dahlqvist and colleagues for the report on their initial experience with the use of a new dedicated bifurcated silicone stent, “Oki stent,” for two posttransplant patients with bronchus intermedius stenosis. In our original study, all enrolled patients had a malignant disease. Their report suggested the usefulness of the Oki stent for the benign as well as malignant airway stenosis.

Airway stenosis is the most frequent airway complication in lung transplant recipients, and stent placement is the most frequently described treatment. Thus, posttransplant airway stenosis is one of the major indications for stent placement in benign diseases. Despite the benign nature of airway stenosis, metallic stents rather than silicone stents have been used more frequently because of the ease of stent placement. The significant limitation of metallic stents is the difficulty of removal, especially for stents left in place for a long time. Late complications associated with metallic stent implantation, including restenosis, frequently occur and often require stent removal. In a large retrospective study of 65 recipients with metallic stent implantation, the frequency of restenosis was reported to be 52%. Furthermore, the need for the stent is often temporary rather than permanent. In the studies on silicone stent placement for posttransplant airway stenosis, the reported success rate of stent removal without recurrence of airway stenosis ranged from 70% to 80%. Thus, silicone stents, which can be removed easily, are preferred for the management of posttransplant airway stenosis. In lung transplant recipients, the bronchus intermedius often is involved because an anastomotic stenosis extends or a nonanastomotic distal bronchial stenosis occurs. For treatment using a silicone stent in such cases, a window method traditionally has been used in which an opening is punched out in the silicone straight stent wall so that ventilation is not prevented in the upper lobe. However, the window method has some drawbacks. There is a discrepancy in size between the right main stem bronchus and the bronchus intermedius, so the silicone straight stent may not fit well. This may lead to migration or excessive granulation tissue formation. Furthermore, the window method is useless for right upper lobe stenosis, which occasionally occurs in lung transplant recipients. The Oki stent was