ATS 2026 Highlights

Respiratory Structure and Function Early Career Professionals

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Get to know members of the RSF Assembly

Is your research clinical, basic science or translational?

Clinical research.

Tell us about your research?

My research focuses on multidisciplinary management approaches to complex airway diseases by integrating both interventional pulmonology and thoracic surgery. I'm particularly interested in optimizing diagnostic and therapeutic bronchoscopic procedures. My work spans custom airway prostheses, robotic bronchoscopy, and pleural disease management. I'm currently leading a multicenter registry on 3D-printed airway stents and am actively working to enhance procedural education through a digital video library of advanced bronchoscopic interventions.

Where do you see yourself in 5 years?

I envision continuing to contribute to the field while pursuing my surgical residency, mentoring younger peers, and promoting access to advanced thoracic tools in underserved and resource-limited settings. I hope to build a practice that combines clinical innovation, impactful research, and cross-disciplinary collaboration to improve airway care globally.

What do you find is the major benefit of RSF Assembly Membership?

A unique hub and a brilliant community to engage, grow, and contribute. It fosters cross-disciplinary dialogue and offers invaluable opportunities for mentorship, collaboration, and leadership development.

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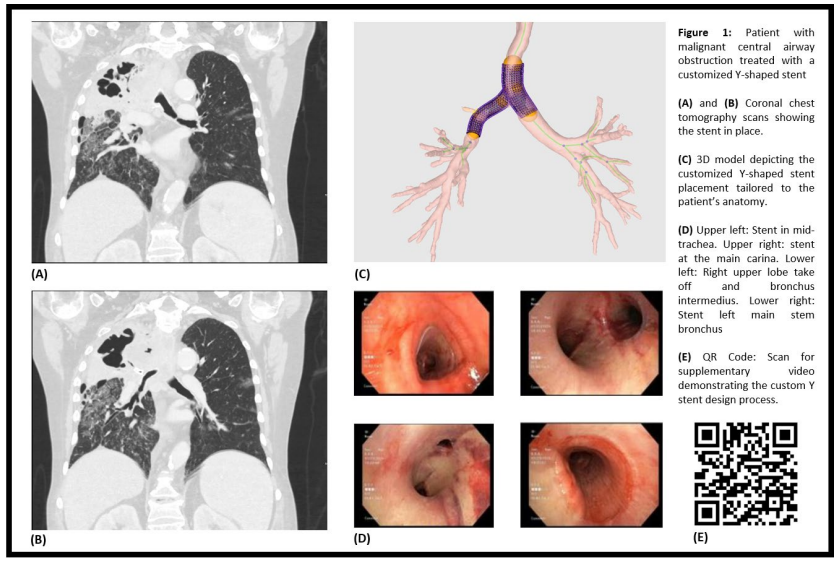

Figure 1: Patient with malignant central airway obstruction treated with a customized Y-shaped stent

(A) and **(B)** Coronal chest tomography scans showing the stent in place.

(C) 3D model depicting the customized Y-shaped stent placement tailored to the patient's anatomy.

(D) Upper left: Stent in mid-trachea. Upper right: stent at the main carina. Lower left: Right upper lobe take off and bronchus intermedius. Lower right: Stent left main stem bronchus

(E) QR Code: Scan for supplementary video demonstrating the custom Y stent design process.

Personalized Airway Stenting: Preliminary Outcomes of 3D Custom Y Stents for Malignant Central Airway Obstruction

Laith A. Ayasa, Alma Burbano, Catherine Fiore, Kai Swenson, Mihir Parikh, Jason Beattie, Adnan Majid

Objective: To evaluate the feasibility and safety of 3D Custom Y Stents (CYS) compared to conventional silicone Y stents in patients with malignant central airway obstruction (MCAO) at short-term follow-up.

Methods: This retrospective study included 18 patients with MCAO who were deemed unfit for surgical intervention—9 received VisionAir 3D-printed CYS and 9 received conventional silicone Y stents. Custom stents were designed using patient-specific anatomic data derived from advanced imaging and 3D-printing technology. Outcomes were assessed 14 days post-procedure, focusing on technical success, subjective clinical benefit, and complication rates including mucus plugging, cough, infection, and reintervention.

Results: Subjective clinical benefit was observed in 77.8% (7/9) of patients receiving CYS compared to 44.4% (4/9) in the conventional group. Complication rates were lower with CYS: mucus plugging (33.3% vs 66.7%), cough (55.6% vs 88.9%), and infection (22.2% vs 55.6%). Reintervention was required in 55.6% (5/9) of CYS cases versus 88.9% (8/9) among controls. Technical success was 100% across all procedures.

Conclusion: These findings suggest that 3D-printed custom Y stents may offer a safe and effective option for managing malignant central airway obstruction, providing improved symptom relief and lower complication rates compared to conventional stents. Larger prospective studies are warranted to validate these early outcomes and assess long-term benefits.

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