# Biodegradable polydioxanone stents in the treatment of severe airway obstruction in children.

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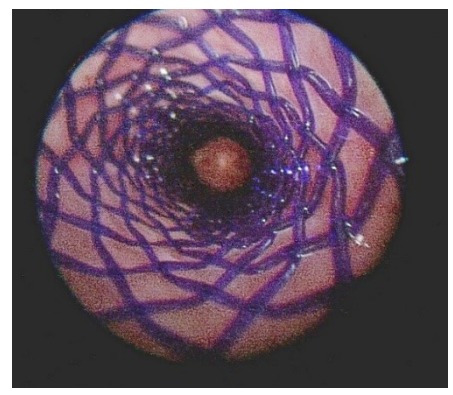
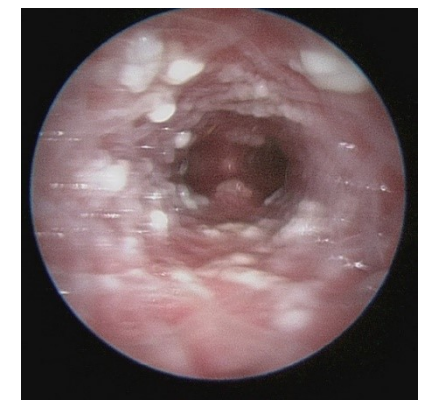
## Objectives

The use of airway stents is usually limited in childhood. An alternative is the use of biodegradable stents. The aim was to evaluate a group of patients who had a biodegradable stent inserted. In particular, with an emphasis on safety, insertion technique, efficacy and monitoring during stent degradation.

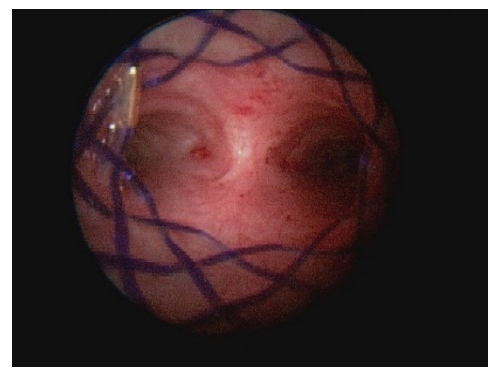
## Methods

Custom made stents from polydioxanone were used in all cases of severe tracheobronchomalacia. Stents were inserted endoscopically with special application tool and with the use of a dilation balloon in most cases. We checked the position endoscopically every 3-4 weeks.

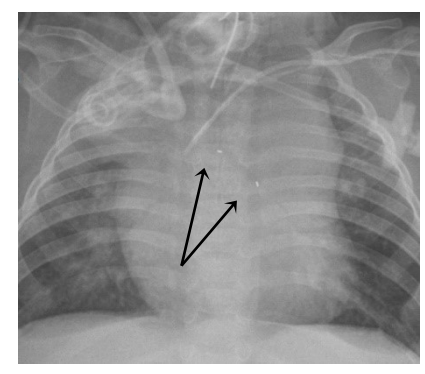




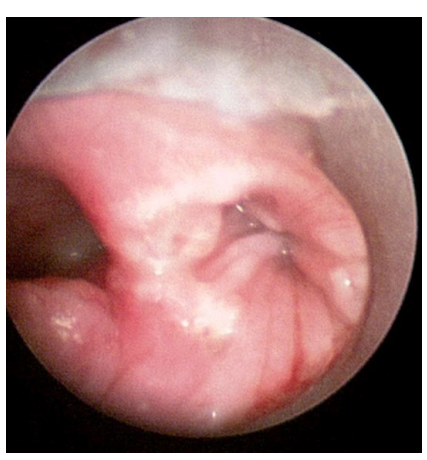
Pic.1. and 2. BD stent in the trachea immediately after insertion and after 12 weeks.

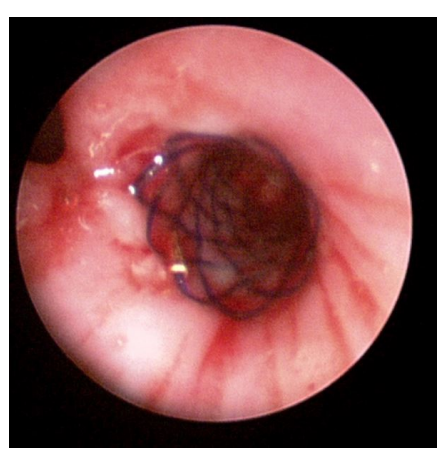


Pic.3. Distal end of the stent reinforcing the trachea just above the carina.



Pic.4. X-ray markers, stent in the left main bronchus.

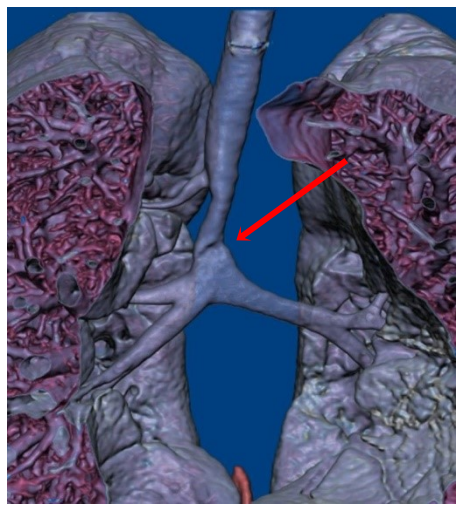


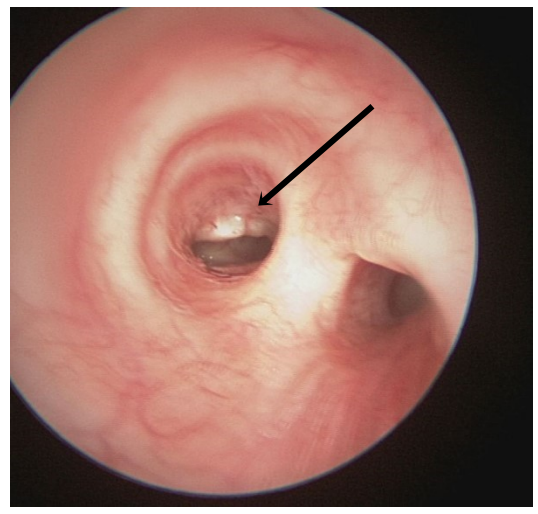


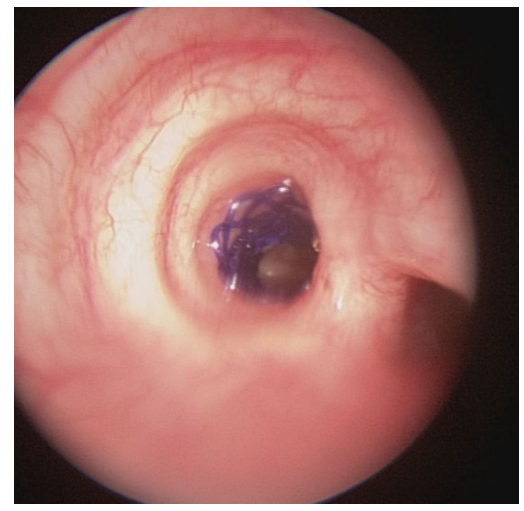
Pic.5. and 6. Completely collapsed anomalous segmental bronchus and view shortly after stent insertion.

## Results

In total, we placed sixteen biodegradable stents in eleven patients. The youngest patient was 3 months old, the oldest 15 years old. The smallest stent was 5x12 mm, the largest 16x40 mm. In two cases we introduced stent into the proximal trachea, in six into the distal trachea and in three into the bronchus. Insertion of stents was uncomplicated, only with 5 mm diameter it was more difficult to remove the introducer. Improved airway patency was immediate in all patients. Degradation changes were observed from 5-6 weeks. In the oldest patient we observed a partial fragmentation of the stent between 10-12 weeks followed by expectoration. In most cases, we observed the formation of minor granulations without clinical significance. In five cases, it was necessary to repeat stent insertion.







Pic. 7.-9. Multiple airway anomaly, tracheal stenosis as a result of vascular sling, view after stent insertion.

Pic.10. BD stent during insertion into the introducer.

## Conclusions

The use of biodegradable stents can be effective in the treatment of severe tracheobronchomalacia in children. In our group we did not experience serious complications associated with stent disintegration.

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