

Amyloid tumour resected by laser therapy

G.H. Russchen*, B. Wouters**, A.F. Meinesz*, S. Janssen***, P.E. Postmus*

Amyloid tumour resected by laser therapy. G.H. Russchen, B. Wouters, A.F. Meinesz, S. Janssen, P.E. Postmus.

ABSTRACT: We report a patient presenting with dyspnoea, cough and fever with a middle lobe atelectasis. Amyloid deposits in the bronchial wall caused almost complete obstruction of the middle lobe bronchus. The patient was treated with neodymium yttrium aluminium garnet (NdYAG) laser photoresection resulting in complete clearance of the middle lobe bronchus. Laser therapy has to be considered as first-line therapy for patients with endobronchial amyloidosis.

Eur Respir J., 1990, 3, 932-933.

* Depts of Pulmonary Diseases and ** Otolaryngology, University Hospital, Groningen, The Netherlands.

*** Dept of Internal Medicine, Canisius-Wilhelmina Hospital, Nijmegen, The Netherlands.

Correspondence: P.E. Postmus, Dept of Pulmonology, University Hospital, Oostersingel 59, 9713 EZ Groningen, The Netherlands.

Keywords: Amyloidosis; neodymium yttrium aluminium garnet (NdYAG) laser therapy.

Received: February 21, 1990; accepted after revision April 12, 1990.

Case history

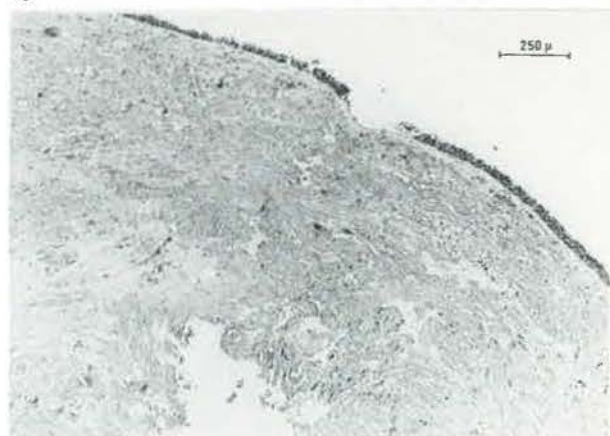
A 39 yr old female presented with dyspnoea, productive cough, fever (39°C) and fatigue. Her medical history was unremarkable. She was a 20 pack year smoker of cigarettes. Physical examination revealed no abnormalities and breath sounds were normal. A postero-anterior (PA) lateral chest roentgenogram showed atelectasis of the middle lobe.



Fig. 1. - Obstruction of the middle lobe bronchus by a mass protruding from the medial wall of the intermediate bronchus.

Fibreoptic bronchoscopy was performed and on the main carina and in the wall of the left main bronchus greyish-white lesions were seen. Furthermore, just proximal to the orifice of the middle lobe, the medial wall of the intermediate bronchus protruded resulting in a considerable obstruction of the middle lobe bronchus. The carina in the middle lobe bronchus was broadened

a)



b)

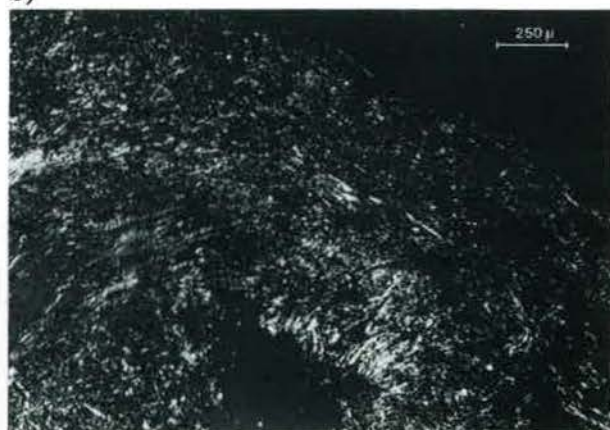


Fig. 2. - a) bronchial biopsy with deposition of eosinophilic material in the submucosa (haematoxylin-eosin stain); b) bright green fluorescence of the eosinophilic material in the submucosa (congo-red stain).

(fig. 1). Biopsies were taken from lesions on the main carina, in the left main bronchus and the middle lobe carina. Histological investigation of these resulted in a diagnosis of amyloidosis of the respiratory tract (fig. 2). There were no signs of amyloid deposits in other organs.

The patient was treated in two sessions under general anaesthesia during rigid bronchoscopy. The obstructing lesion near the orifice of the middle lobe was coagulated by neodymium yttrium aluminium garnet (NdYAG) laser photoresection and split by diathermia. No bleeding occurred perioperatively. After the second treatment a pneumothorax developed which was easily managed by chest tube drainage.

Bronchoscopy was repeated after 4 and 10 months and a normal middle lobe bronchus was found (fig. 3). Twelve months later the patient is still free of complaints.



Fig. 3. - Orifice of the middle lobe bronchus 10 months after treatment.

Discussion

Amyloidosis in the lower respiratory tract can occur in three different forms: 1) as diffuse interstitial deposits; 2) as single or multiple pulmonary nodules; and 3) as tracheobronchial deposits, which is the most frequently found form [1]. The signs and symptoms depend on the site and extension of the amyloidosis. Patients may suffer from dyspnoea, cough, wheezing, haemoptysis, recurrent infections and occasionally atelectases are found. Localized bronchial deposits are usually found in the large lobar or segmental airways and they project into the lumen as rounded, smooth, greyish-white sessile tumours.

Repeated bronchoscopic resection is the usual therapy for obstructing endobronchial amyloidosis. This approach has certain disadvantages such as the risk of bleeding, strictures due to scar tissue and perforation of the bronchus. Cure is rarely achieved, often the lesion recurs within 12 months, and repeated resections are necessary. Only after excision of an isolated mass, either endobronchial or in the parenchyma, is recurrence rare. Other approaches such as pneumonectomy,

radiotherapy or laser photoresection [2, 3] have been reported.

The principle of light amplification by stimulated emission of radiation (laser) has been known for over 25 yrs and is now widely applied in medicine. For lesions in the bronchi the NdYAG laser is available and of especial value for the treatment of malignant tumours obstructing the larger bronchi. In most patients this results in important palliation [4]. Benign endobronchial lesions can also be treated successfully with the NdYAG laser [5, 6] and by this approach resection of normal lung tissue might be prevented. The major advantage of laser therapy in the treatment of endobronchial amyloidosis is the low risk of bleeding as a result of deep coagulation.

The follow-up of our patient is so far rather short and, although the treatment gave a considerable relief of symptoms, it remains uncertain whether a complete resection of the obstructing lesion has been reached. The successful experience of BREUER *et al.* [3] is, in this respect, promising and, based on this and our own experience, we think that laser therapy has to be considered as first-line therapy for amyloidosis of the respiratory tract.

Acknowledgements: The authors would like to thank Prof. J.D. Elema, Dept of Pathology, University Hospital Groningen, for preparing the micrographs (fig. 2).

References

1. Cordier JF, Loire R, Brune J. - Amyloidosis of the lower respiratory tract. *Chest*, 1986, 90, 827-831.
2. Millar AB, O'Reilly AP, Clarke SW, Hetzel MR. - Amyloidosis of the respiratory tract treated by laser therapy. *Thorax*, 1985, 40, 544-545.
3. Breuer R, Simpson GT, Rubinow A, Skinner M, Cohen AS. - Tracheobronchial amyloidosis: treatment by carbon dioxide laser photoresection. *Thorax*, 1985, 40, 870-871.
4. Dumon JF, Reboud E, Garbe L, Aucomte F, Meric B. - Treatment of tracheobronchial lesions by laser photoresection. *Chest*, 1982, 81, 278-284.
5. Hirschler-Schulte CJW, Postmus PE, van Overbeek JJM. - Endoscopic treatment of a whistling middle-lobe bronchus. *Chest*, 1985, 88, 635-636.
6. Eppinga P, van der Laan KT, van Overbeek JJM, Meinesz AF, Postmus PE. - Benign endobronchial tumors treated by Neodymium YAG laser. *Eur Respir J*, 1988, 1, 568-570.

Résection au laser d'une tumeur amyloïde. G.H. Russchen, B. Wouters, A.F. Meinesz, S. Janssen, P.E. Postmus.

RÉSUMÉ: Observation d'un patient se plaignant de dyspnée, de toux et de fièvre, ainsi que d'une atelectasie lobaire moyenne. Une obstruction quasi complète de cette bronche était due à des dépôts amyloïdes de la paroi bronchique. Le patient a subi une photo-résection au NdYAG laser, avec désobstruction complète de la bronche lobaire moyenne. Le traitement au laser doit être considéré comme un traitement initial chez les patients atteints d'amyloïdose endo-bronchique. *Eur Respir J*, 1990, 3, 932.