

Short reports

Recent experience of the treatment of aspergilloma with a surgical stapling device

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With the development of the newer antifungal agents, medical treatment of aspergilloma has become more effective,¹ but patients with persistent major haemoptysis are still referred for surgery.² In the past the morbidity associated with surgery has been high, mainly because of postoperative bleeding from chest wall vessels.³ When the aspergilloma is large or deeply placed, extensive dissection may be inevitable. With smaller peripheral mycetomas, however, the use of surgical stapling devices may permit less extensive dissection around the aspergilloma and this may be associated with less postoperative morbidity. We report our experience of surgery for aspergilloma with particular reference to the use of a surgical stapling device.

Methods and results

From January 1981 to December 1984 six patients, aged 26-61 years, were referred for surgery with a clinical diagnosis of aspergilloma (table). In four the diagnosis was confirmed by high titres of aspergillus precipitins; two of these patients also had positive sputum cultures for aspergillus. All patients were referred after a prolonged period of medical treatment because of recurrent major haemoptysis and one patient (No 1) was becoming increasingly cachectic.

Two patients underwent formal lobectomy and both had large aspergillomas deeply placed within the affected lobe; in the first case the bronchial stump was closed by suture, while in the second a surgical stapling device (Autosuture TA 30)

was used. The remaining four patients were managed by a more conservative surgical method. These four patients had aspergillomas of variable size sited at the periphery of the lung. In these cases operation was carried out through a posterolateral thoracotomy. The portion of lung containing the aspergilloma was mobilised from the chest wall and adjacent lung tissue. Mobilisation was continued until a surgical stapling device (Autosuture TA 90) could be safely applied proximal to the aspergilloma with a margin of about 2 cm of "normal lung." No attempt was made to resect anatomical lung segments and the placement of the stapling device was determined more by surgical convenience than by any formal anatomical consideration. Once positioned, the stapling device was fixed and the lung tissue containing the aspergilloma was excised. Bleeding points were then stopped with diathermy or oversewn and the chest was closed, a single chest tube being left in place with underwater seal drainage.

Serious postoperative complications occurred in the two patients treated by lobectomy; in the first, an elderly cachectic man, a bronchopleural fistula developed early in the post-operative period and progressed to empyema. During the management of this empyema he developed a pseudo-membranous colitis, from which he died, despite intensive medical treatment, 68 days after the original procedure. The second patient suffered major postoperative haemorrhage after lobectomy but made an uneventful further recovery. No important complications occurred in the four patients treated by local resection of the aspergilloma with a stapling device.

At follow up (after one to four years) all the five surviving patients have been in good health with no clinical, radiological, or laboratory evidence of recurrent aspergillus infestation.

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Details of patients, operations, and outcome

Patient No	Age (y)	Sex	Diameter (cm)	Site	Associated pulmonary disease	Steroid treatment	Operation	Complication	Result	Follow up (y)
1	61	M	4	L upper lobe	Tuberculosis	+	Lobectomy (suture)	Bronchopleural fistula	Died	—
2	32	F	3	Lingula	Sarcoidosis	+	Local excision (stapler)	—	Well	3
3	26	F	5	R upper lobe (apex)	Bronchiectasis	—	Local excision (stapler)	—	Well	2
4	53	M	5	R middle lobe	—	—	Lobectomy (stapler)	Haemorrhage	Well	1
5	48	M	3	R lower lobe (posterior basal)	—	—	Local excision (stapler)	—	Well	4
6	57	F	4	L lower lobe	—	—	Local excision (stapler)	—	Well	2

Discussion

Most patients with aspergilloma are treated medically.^{1,4} With recent advances in antifungal chemotherapy, particularly the introduction of ketoconazole and natamycin, the results of such treatment have improved so much that some authors now rarely consider surgery.¹ Patients with severe and recurrent symptoms, however, especially haemoptysis, are still referred for surgery.² In the past surgery has carried high mortality and morbidity rates, particularly from chest wall bleeding.³ This has often led to delay in the referral of other patients for surgery.

Previous surgical series have included cases in which local resection has been used for removal of aspergillomas;² but we have been unable to find any reports of the use of surgical stapling devices to permit such a limited resection. The use of these devices has permitted the development of a technique that allows the safe excision of an aspergilloma with minimal mobilisation of the lung and therefore reduced postoperative bleeding. At the same time, the maximum amount of lung tissue is conserved and an airtight haemostatic seal of the lung edge is achieved.

The technique is ideal for apical lobar segments and other superficially placed aspergillomas but is unsuitable for more deeply placed masses, for which lobectomy or pneumonectomy may be required. The minimising of complications is the most important advantage of this technique. The fact that it conserves much more lung tissue than formal lobectomy is also of benefit, particularly to those patients with impaired respiratory function. Cavernostomy has previously been used in these patients with variable results. Our technique has the advantage of complete removal of the infestation and also of a shorter period of chest tube drainage. Early mobilisation after full expansion of the residual lung can thus be achieved despite the presence of a thoracotomy wound.

The site of the aspergilloma within the lung rather than its size is the principal factor in deciding whether staple resection is possible. When the lesion is very large, however, the extent of mobilisation required is similar to that of formal lobectomy and the advantages of the more limited procedure are lost. The most appropriate role for staple resection is therefore in those patients with smaller, more peripheral lesions, in whom a low morbidity rate may be expected. Surgical intervention can thus be considered earlier in such patients.

Our results suggest that the morbidity associated with surgery in patients with localised types of aspergillus infestation can be greatly reduced by the use of a surgical stapling device. The incidence of recurrent infestation is no greater than that seen after more extensive procedures. The preservation of lung tissue is of benefit to patients with impaired lung function and the decreased operation time for this simpler procedure is of benefit to both patient and surgeon.

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