

GUIDELINES FOR SURGICAL THERAPY FOR PULMONARY NONTUBERCULOUS MYCOBACTERIAL DISEASES

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The Nontuberculous Mycobacteriosis Control Committee
of the Japanese Society for Tuberculosis

Policy

1. The core of surgical therapy for pulmonary nontuberculous mycobacterial diseases is lung resection. Some have reported cavernostomy performed for the purpose of reducing bacterial quantities, whereas there have been no reports on outcomes of thoracoplasty or a combination of cavernostomy + muscle plombage + thoracoplasty for cavity collapse.
2. Surgical therapy is intended to control the disease condition of a patient. Even when the lesion is localized, healing is not complete but relative.
3. Chemotherapy is indispensable before and after surgery. A multidisciplinary approach to treatment is required: even with currently available chemotherapies that are relatively powerless, the effectiveness is exerted optimally in the post-operative period, as there are no large-sized lesions as sources for dissemination of the pathogen.
4. Removal of a single large cavity, a destroyed lung or any other large-sized lesion functioning as a source of large quantities of bacteria makes the surgical treatment worthwhile in many cases since the removal inhibits or delays the progression of disease even temporarily or transiently.
5. For patients who have undergone surgical resection of a nontuberculous mycobacteria-related solitary pulmonary nodule with a clear border and without surrounding disseminated lesions, it remains to be determined whether post-operative chemotherapy is necessary. The answer to this question will be based on future data since there is no relevant evidence available at present. Note, however, the absence of disseminated lesions surrounding such nodules needs to be confirmed by thin section HR-CT or equivalent techniques, since a CT scan with 1-cm slicing is insufficient for confirmation.
6. It is desirable that the Departments of Surgery and Internal Medicine cooperate with each other in performing post-operative prognosis follow-up or post-operative investigation.

Guidelines

1. Implementation of surgical therapy (lung resection)
 - (1) Surgical therapy will be performed when a source of bacterial discharge or a major lesion that can be a source of bacterial discharge is clearly noted and, in addition, one of the following disease conditions is observed:

- Chemotherapy has failed to stop bacterial discharge or bacteriological relapse is noted and, in addition, radiological findings either reveal or predict an enlarged lesion or a tendency of lesion enlargement.
 - Even though bacterial discharge has been prevented, cavitory lesions or bronchiectatic lesions remain, suggesting that relapse or reactivation may occur.
 - Acute exacerbation from lesions that are sources of bacterial discharge has repeatedly occurred, leading to rapid progress in the disease.
- (2) In patients with hemoptysis, repeated airway infection or combined aspergillosis, the responsible lesions will be subject to resection irrespective of the status of bacterial discharge.
 - (3) In view of the slow progress of nontuberculous mycobacterial diseases, surgical therapy may be performed for patients up to 70 years of age. However, given the fact that an increasing number of elderly people are healthier in recent years and there are expectations for symptom improvement, operations may be performed on patients in their seventies.
 - (4) Whether patient will tolerate an operation will be determined on the basis of cardiopulmonary function and other assessments.
 - (5) Small nodular opacities in the contralateral lung or the other leaves in the ipsilateral lung may not always be subject to resection.
2. Operative procedures
 - (1) Lung resection will primarily be performed.
 - (2) Because the lesion extends through airways, when disseminated foci surround the affected lesion or dissemination of lesions into airways is noted, partial resection may leave some lesions at the edge of the resected region. In such a case, it is desirable to select a method of resection along the extended airways (i.e., segmental or greater resection).
 - (3) Cavernostomy is useful in reducing the bacterial inflow into airways.

3. Timing of surgical therapy

In consideration of the limited but possible efficacy of chemotherapy and the reduction of bacterial load, chemotherapy should be given for three to six months before surgical therapy, except for an emergency operation.

4. Post-operative chemotherapy

As stated in the Policy section above, post-operative chemotherapy should be administered. The regimen for post-operative chemotherapy may be the same as the pre-operative regimen. Regarding duration, some reports have indicated that a 6-month post-operative chemotherapy is associated with a high tendency to relapse. However, there is no evidence indicating the optimal duration of post-operative chemotherapy. Since the major lesion discharging bacteria will have already been removed, it is considered appropriate to administer chemo-

therapy for at least one year after surgery in accordance with the guidelines for medical therapy; i.e., “for at least one year after the stop of bacterial discharge,” and on the basis of past experiences. In addition, since reactivation or relapse is noted in some patients even after the conclusion of chemotherapy, the patient’s course should be monitored by X-ray, sputum examination or any other relevant tests even after the end of chemotherapy. Whenever reactivation or relapse is suspected, restart of chemotherapy should be considered.

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