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Sarcoidosis and Coronary Bypass Surgery: A Case Report


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ABSTRACT

Sarcoidosis, a chronic granulomatous disease with unknown etiology and pathogenesis, affects the skin and many other organs and has a course characterized by remissions and relapses. We describe a patient with sarcoidosis, which we diagnosed retrospectively after we had difficulties in harvesting the left internal thoracic artery because of giant and disseminated mediastinal lymphadenopathies on the anterior thoracic wall during urgent coronary artery bypass surgery.

INTRODUCTION

Sarcoidosis, first described in 1889 and named Besnier-Boeck-Schaumann disease, is thought to have a multifactorial etiology [Odom 2000]. Most sarcoidosis patients are asymptomatic [Odom 2000; English 2001], but some patients show nonspecific symptoms, such as fever, weight loss, and fatigue [Vahl 1991; Odom 2000]. Nearly 90% of patients have pulmonary involvement. Intrathoracic lymphadenopathy is often seen in sarcoidosis [Sharma 1993; Gawkrodger 1998; Odom 2000; English 2001]. Hilar and paratracheal lymphadenopathies are seen in more than 90% of patients, and the lymphadenopathies are mostly bilateral and interfere with metastases [Sharma 1993; Odom 2000]. Upper respiratory tract involvement can be seen 5% to 20% of the patients, and lupus pernio may develop on the nose [English 2001].

CASE REPORT

A 71-year-old female patient with sudden onset of chest pain was admitted to the emergency department and was hospitalized in the coronary care unit with a preliminary diagnosis of myocardial infarction. A physical examination revealed stable vital signs, and the patient was conscious and showed good cooperation with instructions. The arterial blood pressure was 100/65 mm Hg, and the heart rate was 84 beats/min with sinus rhythm. There was an infiltrative skin lesion on the patient's nose (Figure A). The cardiac enzymes were elevated (creatine kinase MB, 159 IU/dL; troponin T, 1.37 mg/mL). The patient was taken to the angiography unit with a diagnosis of non–ST-elevation myocardial infarction. A coronary angiography evaluation detected triple-vessel disease with critical narrowing lesions, and echocardiography revealed akinesis in apical and posterior segments and hypokinesis in the anterior segment. The left ventricular ejection fraction was 45%. Coronary artery bypass surgery was planned. After intense medical treatment, a downward trend in cardiac enzyme concentrations was noted, and the patient underwent the operation on the following day.

During the operation we noted diffuse macroscopic fibrotic changes in both lungs and 4 lymphadenomegalies in the mediastinum with sizes of 3 × 2 cm. One of these growths was located on left thoracic wall and strictly adhered to the internal thoracic artery (Figure B). Nevertheless, we prepared the internal thoracic artery with meticulous dissection of the lymphadenomegalic tissue. The lymph nodes adhering to the left internal thoracic artery (LITA) were resected, with the exception of one node that adhered firmly to the LITA. Coronary artery bypass surgery was performed by anastomosing the LITA to the left anterior descending coronary artery and saphenous vein grafts to the obtuse marginal branch of the circumflex coronary artery and the right coronary artery. Lymphadenopathic tissues on the internal thoracic artery and anterior mediastinum were excised for biopsy.

The patient had an uneventful postoperative course, and we discharged her from the hospital on postoperative day 7. The patient showed no problems at follow-up visits at the first and third months after surgery.

A pathologic microscopy examination of the biopsy material confirmed the diagnosis of sarcoidosis. We then carried out a positron emission tomography (PET) computed tomography evaluation with fluorodeoxyglucose to scan the patient's entire body for sarcoidosis. The PET scan revealed no evidence of cardiac involvement or serious involvement of peripheral organs, but intrathoracic subcarinal and precarinal lymph nodes and para-aortic lymph nodes in abdominal views showed increased fluorodeoxyglucose uptake (Figure C). A pathologic examination of lymph nodes excised from the LITA pedicle showed noncaseous granulomas containing many epithelioid histiocytes, giant cells, and fibrosis (Figure D).

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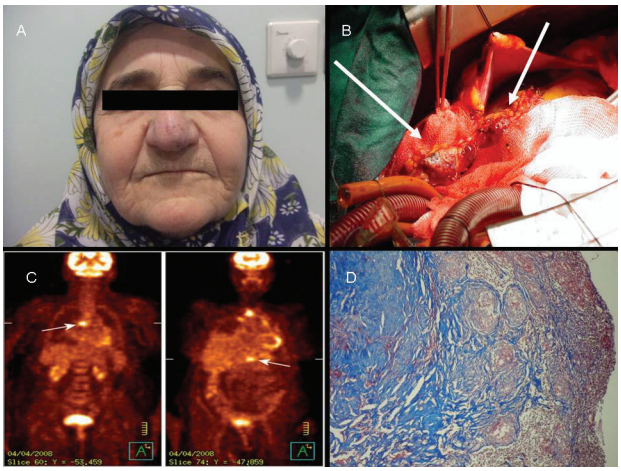

A, Signs of lupus pernio on the patient's nose. B, Giant lymphadenopathies (arrows) adhered to the wall of the left internal thoracic artery (LITA), in bypass grafting of the LITA to the left anterior descending coronary artery. C, Subcarinal and precarinal lymph nodes on thorax images of the positron emission tomography scan and para-aortic lymph nodes in abdominal images show increased fluorodeoxyglucose uptake (arrows). D, Lymph node from the LITA region showing noncaseous granulomas containing many epithelioid histiocytes, with giant cells and fibrosis (Masson trichrome stain, original magnification ×400).

DISCUSSION

Sarcoidosis, a chronic granulomatosis disease with unknown etiology and pathogenesis, can affect the skin and many other organs and shows a course characterized by remissions and relapses. Most patients are asymptomatic. The patient in our case was also asymptomatic, and the diagnosis was confirmed from the excised biopsy material during the postoperative period. Afterwards, a detailed physical examination revealed lupus pernio in the patient's nose.

Lupus pernio, the best known and characteristic form of skin sarcoidosis, can be seen in African American women during the fourth and fifth decades [Sharma 1993; Gawkrodger 1998; English 2001]. Lesions are typically violaceous, flat, and vivid [Sharma 1993; Gawkrodger 1998; Odom 2000]. Telangiectasias and an enlarged venous plexus may be seen over the lesion. The nose, cheeks, lips, forehead, and ears are especially frequent areas of involvement [Sharma 1993; Odom 2000].

A detailed evaluation of the patient after surgery revealed that she had been affected by chronic sarcoidosis for 5 years, and no other organ was involved except for stage II pulmonary involvement. She had never complained to a doctor, and treatment for sarcoidosis had never been suggested.

Clinically, cardiac involvement is seen in 5% of patients, but sarcoidosis exhibits cardiac involvement in approximately 10% to 25% of autopsies [Sharma 1993; English 2001]. More than 90% of patients have hilar and paratracheal lymphadenopathies.

According to the PET computed tomography scan with fluorodeoxyglucose, there was no evidence of cardiac involvement in our case, but the involvement of mediastinal lymph nodes on the thoracic wall, especially those adjacent to internal thoracic artery, was surprising and also signaled that precarinal and subcarinal lymphadenopathies were involved. This condition made the harvesting of the LITA a time-consuming and difficult procedure. The LITA blood flow was very good. Lymphadenopathies adhered to the vessel wall but showed no invasion of the lumen. We therefore decided to use the LITA as a graft for coronary bypass surgery.

Diffuse mediastinal lymphadenopathies in cases of asymptomatic sarcoidosis could involve the lymph nodes on the thoracic wall throughout the course of the LITA and could make LITA harvesting very difficult, as in our case. Nevertheless, when there is no blockage in blood flow or no sign of vessel wall invasion, use of the LITA is advised for coronary artery bypass surgery in sarcoidosis patients, even when the vessel is hard to dissect and prepare, because LITA grafts have a high rate of long-term patency [Lytle 1980; Kolesov 1991; Vahl 1991].

REFERENCES

English JC 3rd, Patel PJ, Greer KE. 2001. Sarcoidosis. J Am Acad Dermatol 44:725-43.

Gawkrodger DJ. 1998. Sarcoidosis. In: Champion RH, Burton JL, Burns DA, Breathnach SM, eds. Textbook of dermatology. 6th ed. Oxford, UK: Blackwell Science: 2679-702.

Kolesov VI, Kolesov EV. 1991. Twenty years' results with internal thoracic artery-coronary artery anastomosis. J Thorac Cardiovasc Surg 101:360-61.

Lytle BW, Loop FD, Thurer RL, Groves LK, Taylor PC, Cosgrove DM. 1980. Isolated left anterior descending coronary atherosclerosis: long-term comparison of internal mammary artery and venous autografts. Circulation 61:869-74.

Odom RB, James WD, Berger TG, eds. 2000. Sarcoidosis. In: Andrews' diseases of the skin: clinical dermatology. 9th ed. Philadelphia, Pa: W.B. Saunders: 896-904.

Sharma OP. 1993. Cutaneous manifestation of disease in other organ systems. In: Fitzpatrick TB, Eisen AZ, Wolff K, Freedberg IM, Austen KF, eds. Dermatology in general medicine. 4th ed. New York, NY: McGraw Hill: 2221-28.

Vahl CF, Carl I, Müller-Vahl H, Struck E. 1991. Brachial plexus injury after cardiac surgery. The role of internal mammary artery preparation: a prospective study on 1000 consecutive patients. J Thorac Cardiovasc Surg 102:724-29.