Madelung's Disease: A Case Report

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A 44-year-old man with a history of alcoholism presented with tender bilateral neck swellings and hoarseness. Further history and a review of the literature are discussed.

Madelung's disease is a rare condition of multiple nonencapsulated lipomas that appear in the neck and upper extremities. It is more common among residents of European countries located along the Mediterranean border, but scattered cases have been reported elsewhere. There is a strong association with alcohol abuse, but the exact cause has not been determined.

Case Report

A 44-year-old black man with a history of alcoholism was referred to our institution by an outside hospital with a chief complaint of bilateral swellings in his neck, which had first appeared 3 to 6 months earlier. The swellings had progressively enlarged and recently had become tender. The patient also complained of early morning hoarseness accompanied by a nonproductive cough during recent weeks. He denied any nausea, vomiting, weight change, fever, chills, night sweats, intravenous drug use, or other medical conditions. His medical history was significant for smoking a pack of cigarettes a day for 30 years and alcohol intake that had been extreme at times. His employment history included being a hog and cattle butcher and working in tobacco barns.

Physical examination revealed a well-developed man who was in no apparent distress but spoke in a low, raspy voice. Bilateral supraclavicular and infraclavicular multilocular swellings were present, freely movable, and unattached to the skin or underlying structures. They were tender to palpation but not erythematous or hot (Figures 1 and 2). Also revealed on physical examination was a more discrete, solid, subcutaneous mass over the left

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scapula, which measured 4 cm \times 2 cm, moved with muscular activity, and was accompanied by an overlying erythematous patch with some skin roughening. There was posterior cervical lymphadenopathy bilaterally but no other nodal involvement.

The patient was seen by an otolaryngologist to evaluate his hoarseness, which revealed bilateral vocal cord edema with white plaques on the right vocal cord (not biopsied). Chest radiography showed opacities in the supraclavicular region. A computed tomography (CT) scan of his chest revealed bilateral supraclavicular fossae fat deposition (Figure 3) and suprascapular masses (Figure 4). A laryngeal CT scan revealed fatty infiltration of the false vocal cords and in the wall of the subglottic space (Figure 5). In a fine-needle aspirate of the supraclavicular masses, fat and a few benign histiocytes were found, but no malignant cells. The vocal cord edema evident on laryngoscopy is presumed to represent the underlying lipomatous tissue, which is the most plausible explanation for this patient's hoarseness. Although a biopsy of the white plaques was not performed, the plaques were presumed to be Candida.

All laboratory values were within normal limits except for an elevated GGT (gamma glutyltransferase) of 172 U/L (normal range, 10 to 46 U/L). Findings were negative for both the human immunodeficiency virus (HIV) and tuberculosis by PPD. Follow-up at both 3 and 6 months revealed no clinical or symptomatic changes.

Discussion

Multiple symmetric lipomatosis is synonymous with terms such as Madelung's disease, Launois-Bensaude adenolipomatosis, and benign symmetric lipomatosis, and is easily confused with a similar hereditary form. It was first described in the late 19th century by Otto Wilhelm Madelung, a German physician who published a report of 30 consecutive cases of deep fatty

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Figure 1. Multiple supraclavicular and subcutaneous lipomas in a 44-year-old man.

infiltration around the neck.¹ Since then, reports of approximately 200 cases have been published, most occurring in European countries that border the Mediterranean Sea.² The first case in China was reported in 1992.³

Madelung's disease usually presents in middle-aged white men with a male-to-female ratio of 4:1,¹ although it has occurred in both women and blacks.^{4,5} It is manifested clinically by symmetrical, nonencapsulated deposits of fat in the shoulders, neck, head, and proximal upper extremities. Madelung described it as a "horsecollar" distribution. These lipomas usually enlarge slowly for the first 1 to 2 years, but occasionally they appear over a course of several months. The size of these lipomas usually remains constant, but some slowly enlarge, and a few have been reported to decrease in size over the ensuing years.⁶ Some patients complain of ten-



Figure 3. Chest computed tomography scan shows large bilateral masses, designated by arrows, in the supraclavicular region. Masses were evident on physical examination.

derness over the lipomas secondary to irritation or rapid increase in size.

There are relatively few major medical sequelæ of these lipomas except cosmetic appearance. Nevertheless, mediastinal syndromes secondary to the spaceoccupying nature of these lesions,⁷ fatty infiltration of the vocal cord and compression of the recurrent laryngeal nerve causing hoarseness,⁸ and slowly progressive axonal sensory and autonomic peripheral neuropathies have been reported.⁹ There is one report, of a case in which a histologically proven lipoma underwent malignant degeneration to a myxoid liposarcoma in a patient who experienced asymmetric enlargement of the lipomas.¹⁰ Sudden death has also been associated with this condition, although it is a very rare sequela.¹¹



Figure 2. Closer view of multiple supraclavicular and subcutaneous lipomas in a 44-year-old man.



Figure 4. Chest computed tomography scan shows supracapsular masses (larger on the left side), designated by arrows. Masses were evident on physical examination.



Figure 5. Laryngeal computed tomography scan reveals bilateral deposition of fat, designated by arrow. The fat deposition, lateral to the true vocal cords, is postulated to be the cause of the patient's hoarseness.

The prevalence of alcoholism in patients with Madelung's disease, reported to be 60% to 90%, suggests some role in the development of these lipomas, but a direct link has not been established.⁶ It has been shown repeatedly that cessation of alcohol consumption does not result in regression of the lipomas, but it may be associated with a reduced rate of growth. Other associated disorders that have been inconsistently linked with Madelung's disease are hyperuricemia, gout, liver disease, diabetes, abnormal glucose tolerance, and hyperlipidemia.^{3,6}

Biopsies of these lipomas show fat cells that are smaller than normal adipocytes. The histologic appearance of the tissue itself is of white fat, but Zancanaro et al¹² demonstrated that the adipocytes resemble brown fat and could come from the brown fat known to reside in the neck. The authors suggest a neoplastic process that involves the brown fat. Enzi et al¹³ reported an insensitivity to the lipolytic effect of norepinephrine on the lipomatous tissue, suggesting a biochemical defect in adrenergicstimulated lipolysis.

Treatment of Madelung's disease has been fairly unsatisfactory. Cessation of alcohol consumption has relatively no effect, and surgical excision is often impractical because of the enormous size of the deposits and their locations.⁵ Surgical excision is further complicated by the increased vascularity and fibrous stroma present in the tissue, as well as the nonencapsulated nature of the lipomas.⁴ Liposuction, which has worked well for some patients, involves less risk than surgery and can be performed multiple times.⁵ The usual recurrence of these lipomas after surgical excision and liposuction, however, is disappointing.³ Weight loss has left these lipomas untouched.⁶ Leung et al¹⁴ demonstrated a beneficial effect of oral albuterol, a selective beta₂ adrenergic agonist that retards the rate of fat accumulation and increases the rate of lipolysis, when used alone or as an adjunct to surgical excision.

The prognosis is directly related to the size, location, and extent of the infiltration of the lipomas.^{8,15} There have been no studies to date that address the effect of this disease on life expectancy; however, with the usual sequelae, this condition carries a high morbidity. Treatment so far has been unsatisfactory, and the cause of this disease remains unknown.

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