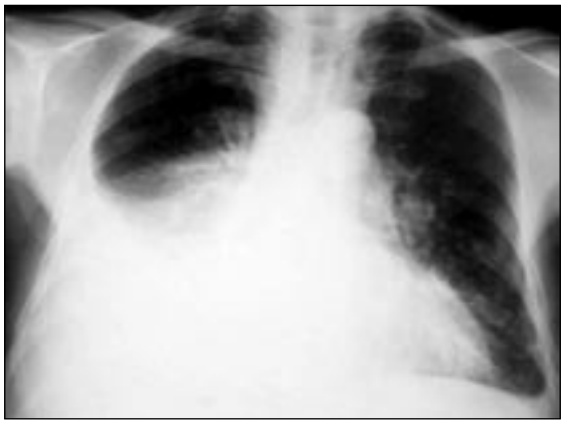

Figure 1. Chest radiograph showing a large effusion in the right side and nodular shadow in the left lower lobe, without mediastinal adenopathy.

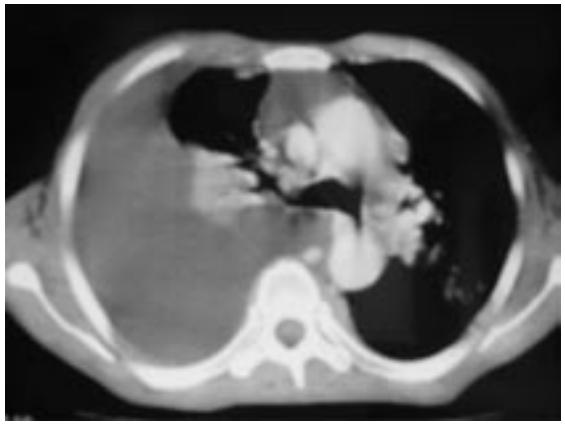

Figure 2. CT scan confirming effusion in the right pleura with condensation in the left lung without abnormally enlarged lymph nodes.

and Anton et al,[7] no obvious mediastinal lymphadenopathy was noted in our patient at the time of his evaluation. No abnormally enlarged lymph nodes were noted in the cases described by Rice et al[5] or Clinton et al.[8] Another possibility involves the flow of leukemic lymphocytes through the lymphatic system. The presence of an extremely large number of abnormal lymphocytes in CLL may cause sludging in the lymphatic system. This sludging may result in a pseudo-obstruction of either the thoracic duct or lymphatics draining the pleura, resulting in chylothorax.[5,7]

Management strategies for chylothorax comprise treatment of the underlying disease (chemotherapy and/or mediastinal irradiation for malignancy). Conservative measures include drainage of the pleural effusion (repeated thoracentesis or continuous intercostal tube drainage), maintenance of nutritional condition (low fat diet with medium-chain triglycerides, total parenteral nutrition). Chemical pleurodesis, usually with talc, may prevent the re-accumulation of the chylous effusion. This approach may be warranted in those patients who are poor candidates for more invasive surgical intervention. In the case reported by Zimhony,[6] mediastinal irradiation followed by talc pleurodesis was performed leading to complete resolution of the chylothorax; mediastinal irradiation alone was also done without efficient result.[6] Surgical therapy is proposed when conservative treatment has failed (pleuroperitoneal shunting, ligation of the thoracic duct). In our case, the rapid evolution made it impossible to try another treatment.

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Laryngeal papillomatosis treated by oral zinc sulphate

To the Editor: Recurrent respiratory papillomatosis is a viral disease caused by the human papilloma virus (HPV). It occurs throughout the respiratory tract from the nose to the lungs. The HPV types found in these lesions are also seen in genital condylomata. Respiratory papillomatosis has a bimodal distribution, being predominant in children under 5 years and after the age of 15

years.[1] Childhood cases are believed to result from maternal infection, probably at birth during vaginal delivery.[2] Young children affected by respiratory papillomatosis present mostly with progressive hoarseness of the voice. Other symptoms are stridor and dyspnea, which may have an acute character and result in suffocation if the papillomas wedge in the vocal cords.[3] Carcinomatous transformation to squamous cell carcinoma is often fatal and develops in about 14% of cases, including cases in young children. Many forms of treatment have been used such as surgery, CO2 laser therapy and interferon.[1] Surgical treatment is not sufficient. According to many authors an improvement in the immunological response and causal treatment of papillomatosis as a viral infection combined with surgical treatment, may guarantee successful treatment.[4] We describe two children who presented with laryngeal papillomatosis and who were treated with oral zinc sulphate.

The first patient was a 9-year-old male student living in Baghdad who presented with hoarseness of voice and recurrent dyspneic attacks since age of 4 years. After the first dyspneic attack he was admitted to hospital and the otolaryngologist performed tracheostomy. Twelve days later a laryngoscopy was performed and laryngeal masses were removed and sent for histopathological examination, which revealed laryngeal papillomatosis. These were excised and the tracheostoma was closed. Two years later he had another dyspneic attack. Another laryngoscopy was carried out, which revealed recurrent papillomatosis, which were excised surgically. The patient was referred to the dermatological department of Baghdad Teaching Hospital and was treated with oral zinc sulphate 10 mg/kg in 2 divided doses (patient weight, 25 kg). Two months later the patient showed a dramatic improvement in his condition, which was apparent when he began to breathe normally even when the tracheal stoma was closed by a finger. Frequent laryngeal examination showed no recurrence of the papillomas. Six months later we were able to close the stoma with a finger while the patient breathed normally with minimal hoarseness of voice. The dose of zinc sulfate was reduced to 5mg/day in 2 divided doses, which was kept as a maintenance dose. Follow up for 3 years showed no recurrence of the papillomas. The tracheostoma was eventually closed successfully (Figure 1). During this period the patient did not complain of any side effect of zinc sulfate.

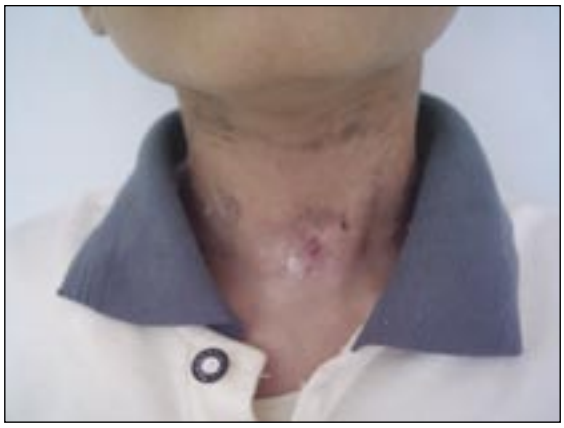

Figure 1. The tracheostoma closure following treatment with oral zinc sulfate.

The second patient was a 7-year-old male living in Baghdad who presented with hoarseness of voice at the age of 4 years. The hoarseness increased gradually in severity. A few months later laryngoscopy was performed and a laryngeal mass was removed and sent for histopathological study, which revealed a laryngeal papilloma. The patient was then referred to the dermatological department where oral zinc sulphate was started at a dose of 10mg/kg in divided doses. Follow up for 24 months revealed no recurrence of the papilloma. The dose of zinc sulfate was reduced to 5mg/kg, which was kept as maintenance dose. No side effects were recorded.

Laryngeal papillomatosis is recurrent and difficult to treat, probably due to latent virus in the laryngeal mucosa.[5] Until now no single method has been found to be totally effective in the eradication of juvenile laryngeal papillomatosis.[3] Zinc is an essential element incorporated in more than 300 metaloenzymes.[6] It affects the immune system and has been used as an immunomodulatory agent to treat a variety of skin diseases like recalcitrant viral skin warts[7] and cutaneous leishmaniasis.[8] Zinc acts also as an antioxidant. Two known mechanisms for this activity are the ability of zinc to protect sulfhydryl groups and inhibit the metal ion-induced formation of reactive oxygen species, which are chronically toxic.[9] Immunomodulation implies either suppression or an augmentation of an immune response. Suppressing the function of the immune response may be im-

portant in cases of inflammation; augmenting the immune response may increase resistance to disease in some conditions.[10] Zinc may act as an antiviral agent possibly by inhibition of viral protein coat synthesis and prevention of virus entry into the cell.[11]

To the best of our knowledge, zinc sulphate has not been reported previously in the treatment of recurrent respiratory papillomatosis. In these two reported cases, oral zinc sulfate was used and follow up of patients showed no recurrence. Therefore we recommend that oral zinc sulphate be used as a future treatment of laryngeal papillomatosis.

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