Carcinoma of the larynx in a child

By CHRISTIAN NSAMBA (Wigan) and G. MARROCCO (Northampton, Massachusetts)

CARCINOMA of the larynx is very rare in man under the age of 12, and of sufficient interest to be reported as single case reports. Vermeulen (1966) collected only six cases in a literature survey that went back to the first laryngectomy done for cancer by Bilroth in 1873. Jones and Gabriel (1969), in a survey of ninety-eight cases of carcinoma of the larynx in the world literature in young people under 20 years of age, have about twenty cases in the 12 and under age group.

What we know now is that malignant degeneration can take place in juvenile papillomatosis. This was found by Rabbett (1965) to be more common in children who had had radiotherapy for papillomatosis. Consequently the practice of irradiating these children has been abandoned.

In most cases where documentation has been complete, the presenting symptom has been hoarseness. The following case is reported because of its unusual presentation of gross cervical and generalized lymphadenopathy (Fig. 1) simulating a reticulosis.

Case report

A 12-year-old boy of Hanover, Jamaica, West Indies, was admitted to the medical ward of the Cornwall Regional Hospital, Montego Bay, Jamaica, on June 23rd, 1975, with a two month history of pain on swallowing. Examination on admission demonstrated bilateral cervical lymphadenopathy and enlarged purulent tonsils. The lymph nodes were described as non-tender but solid. Small discrete lymph nodes were also palpable in the left axilla and both groins.

Laboratory investigations and results were as follows: Serum electrolytes: Sodium 135 mEq/l, Potassium 4.7 mEq/l, Chloride 96 mEq/l, Urea 29 mg/100 ml. Haematological investigations: Haemoglobin 12.7 gm/100 ml, Platelets 223,000; WBC 8643 with 70% segmented forms, 8% eosinophils, 20% lymphocytes and 2% monocytes. The prothrombin time was 13 with a control of 11. The Sickle Cell test was negative. The VDRL was weakly positive. The PPD intermediate strength was negative. Further tests done at the Medical School laboratory were: Total protein 7.5 G/l with serum protein electrophoresis demonstrating a hypoalbuminemia (albumin 38.63% of total). Serum immunoelectrophoresis showed diffusely increased IgG and quantitative immunoglobulins were as follows: IgG 2400 mg%; IGA 270 mg%; IgM 254 mg%.

Because of increasing respiratory distress, the patient was referred to the E.N.T. Department and a tracheostomy was performed on July 3rd, 1975. Direct laryngoscopy showed that he had an extensive tumour with surrounding oedema involving particularly the right side of the larynx. Biopsy was taken from the right aryepiglottic fold and vallecula. Subsequently a lymph node was removed from the right side of the neck and sent for histology.
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FIG. 1
Showing gross cervical lymphadenopathy.

FIG. 2
Laryngeal biopsy × 32.
Shows benign squamous epithelial surface with malignant change on the deep aspect and completely anaplastic extension into the underlying stroma with focal haemorrhage and chronic inflammatory infiltration.
FIG. 3
Lymph node biopsy × 80.
Lymph node architecture has completely disappeared and is replaced by a squamous epithelial infiltrate ranging from practically normal to anaplastic squamous carcinoma. The tumour islands are surrounded by heavy leucocytic infiltration.

The laryngeal biopsies demonstrated a moderately-to-poorly differentiated squamous cell (epidermoid) carcinoma which had metastasized to the lymph node obtained at surgery (CRH 75–614 (laryngeal biopsy) and CRH 75–657 (cervical lymph node biopsy); see Figs. 2, 3 and 4).

The patient was admitted to Kingston Public Hospital in Kingston, Jamaica, on September 12th, 1975, to begin radiotherapy on September 26th. Unfortunately, his tracheostomy tube became dislodged and the patient expired while attempts were being made to re-introduce the tube and resuscitate him. No post-mortem examination was performed.

Discussion

This case emphasizes that carcinoma of the larynx can occur at any age. Hoarseness in children must be investigated promptly and as carefully as in adults. We may add that cervical lymphadenopathy which has no obvious cause in children warrants an examination of the larynx. We believe cases of carcinoma of the larynx in children have been overlooked in the past.

The marked lymphadenopathy and extensive primary tumour may be an indication in this child of an incompetent immune system. As Packer et al. (1975) have indicated in their pilot study, the competence of the immune system should in future be assessed in all patients with head and neck tumours. In their study they did DNCB (di-nitro-chlorobenzene) skin sensitization and serial lymphocyte transformation studies on patients with head and neck tumours. Depending on survival, the patients could be divided into DNCB positive and DNCB negative
groups. They further subdivided the negative patients into those with a lymphocyte stimulation index above fifteen and those beneath this level. They found the former to have a much better prognosis than the latter. Furthermore they showed that both cellular and serum factors cause depression of lymphocyte transformation. Various other authors have reported an alteration in the cellular immune system and this has shown a correlation with the extent of the primary tumour and a correlation with the subsequent course of the tumour after treatment.

In this case, our study of the immune system (cellular immunity) was limited by the facilities available. We were not able to do an in-depth study of the cellular immunity; DNBC testing was not available. The PPD, however, was negative.

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Leigh Infirmary,
The Avenue,
Leigh,
Lancs. WN7 1HS.