Adenocarcinoma of the Transverse Colon in a Child with Survival

-A case report-

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The incidence of carcinoma of the large bowel is very low in children, and it is also known that the prognosis of this tumour in children is very poor. Recently the authors experienced a case of adenocarcinoma of the transverse colon in a 12 year old boy who survived more than 6 years without evidence of disease. This particular case is reported here with a review of the literature.

Key Word: Adenocarcinoma of colon in children

Carcinoma of the large bowel occurs more frequently in elderly people and it shows a very low incidence in patients under 20 years of age. Rarer yet is the chance to survive more than 5 years in young patients with this tumour.

A 12 year old boy presented here survived adenocarcinoma of the transverse colon more than 6 years after treatment without evidence of disease.

CASE REPORT

A 12 year old boy was admitted on October 7, 1986 with the complaints of abdominal pain, vomiting and abdominal distention for 20 days. About 6 months prior to admission the boy developed discomfort in the upper abdomen and mild abdominal distention which was improved with medication. Twenty days before admission, the abdominal pain and distention recurred along with vomiting, and he was brought to the private clinic where he was put to the conservative management without improvement. He was transferred to this hospital. He lost about 2 kg in weight during the last 2 months. Physical examination revealed moderate distention of the abdomen and tenderness in the left upper abdomen, but there was no mass or enlargement of the abdominal organ. Bowel sound was rather increased, and digital rectal examination was not remarkable.

The boy looked chronically ill. The blood pressure was 110/80, pulse rate 82/min, body temperature 37.2°C, respiration 22/min. Laboratory data showed WBC 7,100/mm³, hemoglobin 14.5 gm%, and electrolyte Na 133 mM/L, K 3.7 mM/L, Cl 99 mM/L, CO₂ 27 mM/L. The findings of a chest X-ray were within normal limits, and plain abdominal radiography showed a picture of mechanical intestinal obstruction (Fig. 1). Abdominal ultrasonogram was not contributory.

The CEA value, sampled on the operating table was 11.38 ng/ml. Emergency laparotomy was performed under the diagnosis of intestinal obstruction.

The operation showed a huge fungating tumour in the left transverse colon, which was
highly suspected to be malignant (Fig. 2). The colon proximal to the tumour mass was dilated with multiple enlarged lymph nodes in the transverse mesocolon. No distant metastasis was seen.

Radical left colectomy was performed with end-to-end anastomosis. Lumen of the colon was almost obstructed by the tumour. The tumour was measured about $6 \times 4$ cm in size with a nodular appearance. Microscopic findings revealed a moderately well differentiated adenocarcinoma with penetration of the wall and a spread to the pericolic fat tissue (Fig. 3-5).

Eleven out of 28 lymph nodes from the mesocolon contained metastatic adenocarcinoma. After the operation, the patient refused any type of adjuvant therapy and was discharged.

Even though he refused any adjuvant therapy, he was followed regularly through an outpatient basis. The CEA value was checked for follow-up, as shown in the table.

Flow cytometry showed an aneuploid tu-
Carcinoma of Colon in a Child

Fig. 3. Cut surface showing a polypoid fungating mass with central umbilication and extension to the pericolic fat tissue.

<table>
<thead>
<tr>
<th>Date</th>
<th>Value</th>
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<tbody>
<tr>
<td>Oct. 18, 1986</td>
<td>11.38 ng/mL</td>
</tr>
<tr>
<td>Jan. 26, 1987</td>
<td>3.32 ng/mL</td>
</tr>
<tr>
<td>Jan. 29, 1991</td>
<td>4.27 ng/mL</td>
</tr>
<tr>
<td>Jan. 3, 1992</td>
<td>2.30 ng/mL</td>
</tr>
<tr>
<td>Feb. 26, 1993</td>
<td>1.20 ng/mL</td>
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mourn with a DNA index of 1.25, G0/G1 83.7%, and S+G2M 16.3%. By the end of March, 1993, the patient was good and well without evidence of the disease (Fig. 6).

DISCUSSION

Carcinoma of the colon in childhood is
Fig. 4. Transitional zone between infiltrating anaplastic glands of an adenocarcinoma of colon and normal colonic epithelium (×40).

Fig. 5. Low power field of well differentiated adenocarcinoma infiltrating the muscle layer of colon (×100).
very rare, and Ahfeld (1980) reported the first case of this tumour in a still birth baby. About 300 cases of the colon carcinoma in childhood have been reported since Kern and White (1983) reported carcinoma of the colon in a 9-month-old-girl.

Carcinoma of the colon is most commonly seen in the 4th decade of life (Cain and Longino 1970), and it comprises only 1% of all malignant tumours arising in the large bowel under the age of 20 (Rao et al. 1985; Sessions et al. 1965; Wolloch and Dintsman 1974). Precancerous lesions of the colon seem to be more frequent in younger patients (0.5%) than in older patients (6%) (Chabalko and Fraumeni 1975; Enker et al. 1977; Goldthorn et al. 1983), but this particular case reported here did not have such lesions nor the family history of such lesions.

It is usually said that the poor prognosis of colorectal carcinoma in children is attributed to three factors: 1) delay in diagnosis 2) advanced disease at presentation 3) histologically high incidence of mucin producing poorly differentiated adenocarcinoma (Andersson and Bergdahl 1976; Brown et al. 1992; Cain and Longino 1970; Chabalko and Fraumeni 1975; Enker et al. 1977; Hall and Coffey 1961; Harlow et al. 1991; Hoener 1958).

This case also had a delayed diagnosis because of vague non-specific symptoms for about 6 months, and presented with sudden intestinal obstruction (Ibrahim and Abdul 1982; Middlekamp and Haffner 1963), but histologically the carcinoma was the well differentiated type even though it was infiltrated into the pericolic fat tissue.

The CEA value has been a good tumour marker for the follow-up of this patient (Goldthorn et al. 1983; Hogo and Koyama 1982), and clinically correlated well. Flow cytometric DNA analysis of the tumour revealed an aneuploid tumour with a DNA index of 1.25, G0/G1, 83.7% and S+G2M, 16.3%.

Survival of this case may be attributed to the well-differentiated histologic type of the tumour and the lower value of the proliferative index of the tumour as shown in flow cytometry (Harlow et al. 1991).
REFERENCES

Hall A, Coffey RJ: Cancer of the Large Bowel in the Young Adult. AM J Surg 102: 66-72, 1961