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## Angiography in Stomach Carcinoid Report. of a Case

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## 胃カルチノイドの血管造影の検討

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稀な疾患である胃カルチノイドの本邦における報告は35例にすぎず、血管造影を施行しその所見を記載した報告は見当たらない。今回、胃粘膜下腫瘍の症例に術前検査として腹腔動脈造影を行い、術後、組織学的に胃カルチノイドと判明した1例を経験したのでその特異的血管造影所見を分析検討し今後の指針に資する。

血管造影所見は、動脈相では胃十二指腸動脈の拡張、右胃大網動脈の蛇行と狭小化およびこれより分岐する胃血管の偏位、圧排、直線化、壁不整ならびに末梢における中等度の血管増生の出現が認められ、静脈相では胃前庭部大弯に淡い腫瘍濃

染像と右胃大網静脈の不整断絶ならびにこの閉塞した部位と脾門部の間には数本の屈曲蛇行する静脈が出現し奇静脈に連らなっていたのが特徴的である。

これらの血管像所見は、Reuter, Claps らの報告にみられる小腸カルチノイドの血管像と類似するが、他の胃粘膜下腫瘍の血管像所見とは静脈相における異常所見に多少の差異を指摘し得た。しかし胃粘膜下腫瘍の組織学的鑑別診断における血管造影の有用性を高めるには、胃カルチノイドの症例をさらに重ね、検討する必要がある。

Carcinoid is known as a tumor that produces serotonin, but the stomach carcinoid is a very rare disease and only 35 cases have been reported<sup>3)</sup>. Angiographic findings of ileal carcinoid were reported by Reuter<sup>1)</sup>, Claps<sup>4)</sup>, Björn<sup>1)</sup> and Goldstein<sup>5)</sup>. While no report has not as yet been described concerning stomach carcinoid. This prompted us to report the case.

#### Report of a Case:

A 50-year-old man was admitted for further evaluation of a movable tumor in epigastrium. The patient complained of no carcinoid symptoms such as flushing, abdominal pain, diarrhea or dyspnea. GI series were performed, which revealed a round filling defect in greater curvature of the antrum, approximately 5 cm in diameter accompanying ulceration. It was diagnosed to be a submucosal tumor of the stomach because of a presence of the bridging folds. Then celiac arteriography was carried out. The gastroduodenal artery was dilated and the right gastroepiploic artery showed snaking, while a slight narrowing was noted at the antrum. The gastric branches from this portion showed displacement, stretching, linearization and luminal irregularity. Pancreatico-duodenal artery and their branches were normal (Fig. 1). In the venous phase, a tumor staining of approximately  $5 \times 6$  cm in size was demonstrated on the greater curvature of the antrum and an irregular obstruction of the gastroepiploic and the omental vein were shown around the staining. Although a visualization of the splenic vein was not clear and several tortuous veins were observed between obstruction of the gastroepiploic vein and the hilum of the spleen and hemiazygos vein was also seen (Fig. 2).

From these angiographic findings, it was diagnosed as a malignant tumor of the stomach, although

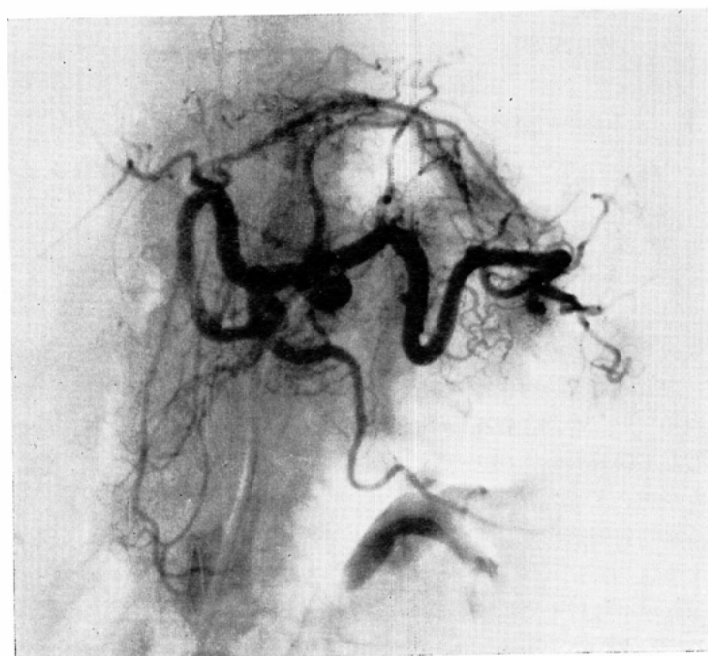


Fig. 1. Arterial phase: Gastroduodenal artery and right gastroepiploic artery were dilated and slight narrowing was noted at the antrum. The gastric branches from this portion showed displacement, stretching, linearization or luminal irregularity and moderate tumor vessels were seen.

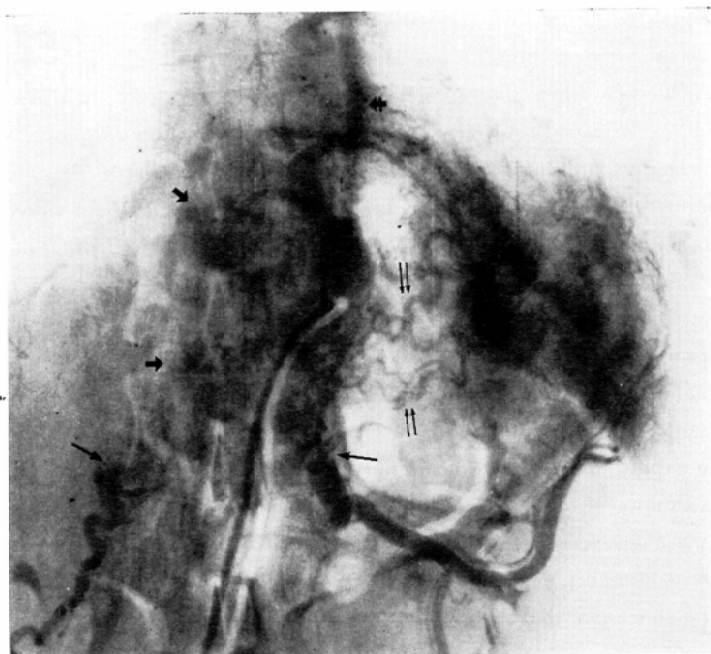


Fig. 2. Venous phase: A tumor staining (→) was demonstrated on the greater curvature of the antrum and an irregular obstruction of the gastroepiploic and the omental vein (→) was shown around the staining. Several tortuous veins (⇔) were observed between obstruction of the vein and the hilum of the spleen and hemiazygos vein was also seen (+).

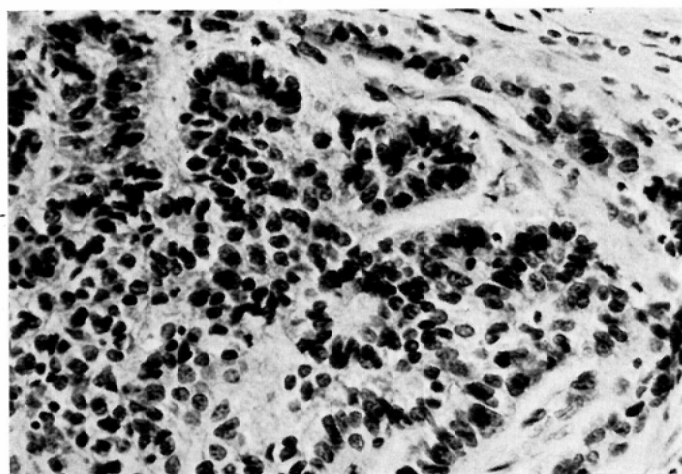


Fig. 3. Histopathologic diagnosis was stomach carcinoid.

the detail of its nature was not evaluated.

At operation, a submucosal tumor of the stomach was recognized  $6 \times 6$  cm in size with  $3 \times 4.5$  cm ulceration on the greater curvature of the antrum. Histologically, it was diagnosed to be a stomach carcinoid (Fig. 3).

### Discussion:

In the diagnosis of carcinoid tumor, it has been believed to show the specific symptoms such as flushing, abdominal pain and diarrhea, and an elevation of 5-hydroxy indolacetic acid in the urine and 5-hydroxy thryptamine in the blood, but one should note the fact that the symptoms and an elevation of these metabolic substances are rarely seen in case of stomach carcinoid<sup>3)7)9)</sup>. Moreover, the tumor develops mainly in the submucosa as protruding type, resulting in a difficulty of a preoperative diagnosis. In this regard, Pochaczewsky<sup>10)</sup> and Okeon<sup>9)</sup> reported their roentgenologic findings of stomach carcinoid, but they diagnosed as polyp or submucosal tumor of the stomach. Yao reported a case of the stomach carcinoid which was diagnosed by biopsy under endoscopical guidance<sup>13)</sup>. But in many instances, it is not necessarily possible to obtain a satisfactory sampling of the submucosal tumor by biopsy.

On the other hand, angiographic examination has also many advantages for the diagnosis of stomach tumor and at the same time can detect the nature and the metastases to the liver or to the neighboring organs. But angiographic findings were not reported on the stomach carcinoid. In the angiographic findings of carcinoid tumor of the ileal carcinoid were reported by Reuter, Claps, Björn and Goldstein. Reuter described the characteristics of the findings as "the tumor were quite vascular, with a stellate pattern in the arterial branches, poor-to-moderate accumulation of contrast material, and non-visualization of veins", and concluded that such signs are most significant in other kinds of ileal tumors and that the angiographic examination is an effective method for the diagnosis of the ileal carcinoid<sup>11)</sup>. Claps and Björn also reported a similar angiographic findings<sup>14)</sup>. Goldstein described the findings as "irregularity and narrowing of the distal arterial branches, minimal parenchymal stain, and obstructed venous return"<sup>5)</sup>.

The angiographic findings of the stomach carcinoid that we have experienced have manifested local narrowing of gastropiploic artery, displacement and stretching of its branches, with tumor vessels in moderate degree. In the venous phase, an irregular occlusion of the gastropiploic vein, a faint tumor stain and the formation of collateral circulation were shown. These findings have some points similar to those of ileal carcinoid, but when compared with those of the other submucosal tumor of the stomach, no significant findings could be seen to distinguish stomach carcinoid from the others<sup>2)6)12)</sup>. Hypothetically, significant infiltration in venous phase such as occlusion of large veins may have demonstrated a characteristic difference from that of the other stomach tumors.

In any respect, angiography may have some advantages in distinguishing submucosal tumor of the stomach. But it should be noted that much more experiences concerning the stomach carcinoid will bring the differential diagnosis of the tumor more exactly.

### Summary

A case of stomach carcinoid has been investigated by angiography. To our knowledge, there has been no previous report about the angiography in stomach carcinoid. These findings of this tumor were local narrowing of gastropiploic artery, displacement and stretching of its branches, with tumor vessels in moderate degree. In the venous phase, an irregular occlusion of the gastropiploic vein, a faint tumor stain and the formation of collateral circulation were shown. And there are discussed upon the angiographic findings of stomach carcinoid and ileal carcinoid.

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