

and serial gastric images were obtained using a gamma camera and a data processing system. In the pathological cases, serial enlarged gastric images were obtained using our Di/Con collimator. A total of 65 cases were investigated 16 of the cases were normal and the other 49 cases were as follows: gastric cancer, 13; gastric ulcer, 15; gastric ulcer scar, 4; atrophic gastritis, 6; others, 11. The findings of the gastric scintigrams were compared with those of X-ray examination, endoscopy, biopsy and histological examination in the surgical specimen. In the normal cases the stomach was clearly displayed within approximately 3 minutes postinjection, and it was considered the appropriate gastric images for the detection of cold spot could be obtained within about 5 to 10 min

postinjection. In the cases of gastric cancer, the lesion was detectable as cold spot, but in the cases with intestinal metaplasia cold spot was larger than the extent of lesion in alimentary examination. In the cases of gastric ulcer some large niches were slightly visible as cold spots, while smaller niches not detectable, but in the cases with intestinal metaplasia the extent of cold spots were recognized clearly. Also in the cases of atrophic gastritis with intestinal metaplasia, cold spots were detectable but in some cases without intestinal metaplasia not detectable. From the above, cold spot of the gastric scintigram is not only observed in the cases of gastric cancer and gastric ulcer but also in the cases of the presence of intestinal metaplasia.

Diagnosis of a Small Intestine with Ectopic Gastric Mucosa by Means of $^{99m}\text{TcO}_4^-$ Scanning

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In 1967, Harden and his associates suggested that by scintigram, only gastric *mucosa* absorbed $^{99m}\text{TcO}_4^-$ in the intestinal tract. Subsequently Jewett and his associates reported a clinical case in which they diagnosed the Meckel's *diverticulum* with ectopic gastric *mucosa* before performing their operation. We did abdominal scanning in clinical cases in which intestinal bleeding by unknown origin occurred. We injected $500\mu\text{Ci}$ – 1 mCi of $^{99m}\text{TcO}_4^-$ intravenously to infants and children, and about 4 mCi of the same to adults. After the injection, we performed abdominal scanning at intervals of 15, 30, 60, and 120 minutes. We collected the data from the scannings and plotted these on a three dimensional chart. During this procedure, we used Nuclear Chicago $\text{pho-}\gamma\text{-Camera}$ (Hp type) and CDS 4096. We conducted this procedure in 22 cases in which intestinal hemorrhage had occurred,

and obtained hot images in 4 of those cases. Case 1 was a duplication of the small intestine. Cases 2 and 3 were Meckel's *diverticulum* and their illnesses were confirmed by operation. Case 4 was an abdominal wall *hemangioma*.

In an experiment we injected $2\text{--}5\text{ mCi}$ of $^{99m}\text{TcO}_4^-$ intravenously to 4 groups of rats, and then killed these groups one group at a time at intervals of 10, 20, 30, and 60 minutes. Next we made microradio autograms of their small intestines, stomachs, and colons, and thus ascertained that the gastric *mucosa* absorbed $^{99m}\text{TcO}_4^-$ only.

Abdominal scanning by $^{99m}\text{TcO}_4^-$ is useful to find ectopic gastric *mucosa* in the intestinal tract. If we suspect intestinal hemorrhage from Meckel's *diverticulum* in a patient, we should examine him in accordance with the procedure outlined above.