
症 例

SUPERIOR ARTERIOMESENTERIAL DUODENAL STENOSIS ACCOMPANIED BY THE PAYR'S DISEASE AND THE MOVABLE ELONGATED SIGMOID COLON. REPORT OF A CASE

by

TOSHIYUKI SERA, YUTAKA YASUMOTO & MASANOBU OKAMOTO

Surgical Department of the YODO Communications Hospital

(Chief: Dr. KAZUO YABUKI)

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In this paper, a case of the arteriomesenterial duodenal stenosis with the PAYR's disease and the movable elongated sigmoid colon was presented.

CASE REPORT

Patient: a 31-year-old, unmarried female, nurse

Chief Complain: nausea and vomiting

Family History: patient's father died of malignant tumor of the kidney two years ago. Her brother is now under the medical treatment for his pulmonary tuberculosis.

Past History of the Patient: Between 1950 and 1951 she often had severe epigastric pains, and each time a morphine injection was necessary to control it. In March 1954, having night sweat and epigastralga, she was diagnosed as tuberculous peritonitis by an internalist of our hospital. She underwent a combined chemotherapy for tuberculosis with PAS, INAH and Streptomycin for about a month. In May 1954, she felt severe ileocecal pain. Under a diagnosis of acute appendicitis, an appendectomy was carried out immediately. After the surgical operation a light fever continued and again PAS was given for another month. Since then dull or sometimes colic pains occurred in her lower part of the abdomen, which were controlled by injections of morphine.

In May 1955, on a fluoroscopic study using the contrast media, movable cecum and sigmoid colon were suspected. She had another operation and the coecopexy was carried out. After the second surgery she recovered very well, and freed almost entirely from the pain of the epigastrium.

Since several years ago, eruption like hives developed on her arms and legs on exposure to the cold. Also she used to have eruption and fever ($37^{\circ} 2'$), when she took pulvis extracti scopulae and banthine.

Present Illness: One day, in February 1957, she began to have a nauseated feeling from the morning and vomited the gastric juice in the evening. Thereafter, she still could only take a little quantity of the soft meal, but used to vomit all

what she ate within a few hours without pain; furthermore to vomit bilious juice frequently. She gradually lost her appetite and began to have constipation and diarrhoea alternately.

FINDING ON ADMISSION

The patient was of the medium size, undernourished and had anemic skin. Pulse rate was 74 per minute, respiratory rate 20 per minute, and no other physical abnormality was found in the heart and the lung. The tonsils was not swollen. The thoracic part of the spinal vertebrae was slightly kyphotic and stiff but no abnormality was found in the lumbosacral part. No abnormality was found in joints of extremities.

TABLE 1. Pharmacodynamic Test

Adrenalin. March 25. 0.55 mg. Reaction, ++												
		before	5'	10'	15'	20'	25'	30'	45'	60'	1°30'	
Blood pressure	Max.	104	114	114	120	118	118	116	118	120	116	
	Min.	40	45	50	48	48	70	40	45	48	50	
Pulse Rate		58	62	70	68	71	78	72	68	64	72	
Tremor		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Palpitation		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Paleness		(-)	(-)	(-)	(-)	(-)	(+)	(+)	(+)	(-)	(-)	
Pupil		(as before)			"	"	"	"	"	"	"	
Frequency of Respiration		21	23	23	24	24	23	24	20	24	18	
Spontaneous Pain		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Pilocarpin. March 24. 0.55 mg. Reaction; ++												
		before	5'	10'	15'	20'	25'	30'	45'	60'	1°30'	
Blood pressure	Max.	104	100	96	98	110	100	106	98	100	96	
	Min.	40	40	98	40	40	40	48	50	50	56	
Salivation (ccm)		0	30	40	30	35	20	10	10	10	Total 195	
Dyspnea		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Peristalsis		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Sweating		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Sense of Heat		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Nausea		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Strangury		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Tenesmus		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Pulse Rate		60	80	82	84	76	76	68	64	60	60	
Atropin. March. 23. 0.55 mg. Reaction; +												
		before	5'	10'	15'	20'	25'	30'	45'	60'	1°30'	2°00'
Pulse Rate		60	54	62	60	66	66	70	68	64	66	
Feeling of Thirst		(-)	(-)	(-)	(+)	(++)	(++)	(++)	(++)	(+)	(+)	(-)
Palpitation		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	
Dermography		(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	

Total
195

Local Findings: The abdomen was slightly caved in. There was a tender spot in the epigastrium on digital pressure, but no abnormal resistance was felt in this portion. The liver, spleen and kidneys were not palpable and no other abnormality was observed except that a borborygmus was felt in the right lower portion of the abdomen and was heard in the left lower portion of the breast.

LABORATORY EXAMINATIONS

Blood: Count of red blood corpuscles 420×10^4 , Hg-content 72% (Sahli), Count of white blood corpuscles 5,050 (neutrophil cell 60%, eosinophil cell 0%, lymphocyte 30%, monocyte 10%), G. B. 1056, G. P. 1029, Ht. 40, Hb. 13.6, Serumalbumin 8.3g/dl

Liver Function: Meulengracht's method $\times 6$, Serum Co-reaction R. 5, Serum Cd-reaction R. 7, B. S. P. 0% (45 minutes)

Urine: Albumin: (-), Diabetes: (-), Urobilinogen: (+)

Gastric Juice: No abnormality was found.

Pharmacodynamic Test: As shown in the TABLE I, the patient reacted for Adrenalin, Pylocarpin and Atropin, especially for the first two. Reaction were markedly.

Fluoroscopic Studies of the Stomach and Bowels (Fig. 1, 2, 3): The contrast



Fig. 1 Fluoroscopic studies of the stomach and colon, barium was given perorally as well as perrectally.

Fig. 2 Perrectal fluoroscopic study of the onlon.
S: Sigmoid colon

Fig. 3 The isolated duodenography.
D. T.: Duodenal tube

media introduced perorally, revealed no marked organic change of the stomach but an atonic gastropnoxis. Duodenum, on the other hand, was dilated in its entire course especially in its transverse portion, and the contrast media stagnated there for long period of time. Also the antiperistalsis was observed there. These findings of the duodenum were more clearly demonstrated by the isolated duodenography. From time to time only a small amount of the contrast media passed in the jejunum

from the transverse part of the duodenum, where the barium was markedly stagnated. Then, the perrectally introduced contrast media showed the movable elongated sigmoid colon and also the adhesion between the transverse colon and descendent colon filled with the gas, moreover the transverse colon was movable at the hepatic flexure.

CLINICAL DIAGNOSIS

Based on the above mentioned findings, we made a diagnosis of the arteriomesenterial duodenal stenosis associated with the movable elongated sigmoid colon.

OPERATION

Laparotomy was performed under a general anesthesia with S. C. C. and N₂O-gas. An upper mid-line incision was made. No ascites was found. The stomach and the duodenum were markedly dilated but with normal peristalsis and sometimes antiperistalsis. There was no abnormal adhesion between the stomach and the bowels, and only between the gall-bladder and the descendent duodenum a fibrous adhesion was found. The duodenum, especially its transverse portion was very markedly dilated. At the distal end of this dilated duodenum the superior mesenteric blood vessels, which pressed the duodenum backwards to the vertebrae was palpable. Consequently, the lumen in this part of the duodenum was as narrow as the index finger of the operator hardly passed through it. On the mesentery, several elastic lymphglands as large as red beans were found along the superior mesenteric artery. But abnormality was found neither in the jejunum nor in the ileum. Between the distal portion of the transverse colon and the proximal portion of the descendent colon, however, a fibrous adhesion was found and the former was dilated with the gas and the latter was tightly fixed in a wide area and slightly stenosed. These facts meant the PAYR's disease. The sigmoid colon was elongated and mobile that it was easily pulled up to the epigastrium. No tuberculous change was found in the serous membrane of the bowels nor in the peritoneum.

The resection of the stomach (1/2) and the gastro-jejunostomy terminolateralis oralis inferior retro-colica was carried out for the relief of the symptoms due to the superior arteriomesenterial duodenal stenosis.

POSTOPERATIVE COURSE

For several postoperative days, the patient had a fever about 38°C. Thereafter, however, the postoperative course was favourable. The patient had no nausea and vomiting, but there was a borborygmus in the lower portion of the left-breast and she had constipation (2-3 days).

On the x-ray examination after the operation, the contrast media was periodically passed into the jejunum after staying in the stomach for a while and no retroflux of the barium into the duodenum was found (Fig. 4).

DISCUSSION

This disease was reported for the first time by NICAISE (1885) and KUODRAT

(1895), and later studied more in detail by P. ALBRECHT (1895). HABERER (1913) considered this as a special disease and stated, "This happens when the superior mesenteric artery presses the lower duodenum against the spinal column, and is caused by the following three factors: (1) The pressure of the lower mesentery by the hanging bowels. (2) The pressure by enlarged stomach. (3) The pressure by the curved spine".

On the other hand, MELCHIOR insisted that this disease should be called, "Acute gastro-duodenal atony", because this was caused by the concurrent atony of the stomach and the duodenum.

In Japan, YADA (1920) made the first description on an acute case of this disease, and IWAKAWA (1925) on a chronic case. Later, reports were made chiefly on the acute cases.

As to the genesis of this disease, ARAKI (1939), based on his investigation of a case, reported that his case was caused by the valvular stenosis of the duodenum at the point crossed with the superior mesenteric vessels there to the results of the atonic dilatation of the stomach and duodenum. HAGIHARA (1954) classified the disease into 3 following groups in accordance with its genesis: (1) When the mesentery of the small intestine hangs down in the pelvic cavity owing to the visceroptosis, emptied bowels by strong emaciation or by hunger, the superior mesenteric artery is pulled downwards, and the duodenum is pressed backwards with it against the spine. (2) When the stomach dilates due to the acute paralysis and the mesentery of the small intestine is pushed down into the pelvic cavity, the superior mesenteric artery is stretched and results in the stenosis of the transverse portion of the duodenum (FUJINAMI, 1938). (3) When there are deformity or atonic dilatation of the duodenum, valvular stenosis is produced by the superior mesenteric blood vessels.

At any rate, so far, several explanations were reported about the genesis of this disease in Japan.

Diagnosis of this disease is rather easy: i. e., according to MUTO & TAKETANI (1932) if the gas filled in the duodenum especially in its lower portion is found in the radiogram of the abdomen, and the median border of this gas corresponds anatomically to the course of the superior mesenteric artery, this disease would be highly suspicious. OGASAWARA (1956) stated, "When there are nausea, vomiting, epigastralgia and abnormal peristalsis in the epigastrium soon after the meals, this disease must be taken into consideration. The fluoroscopic studies of the stomach and the duodenum are essential for the diagnosis. If possible, the isolated duodenography is highly desirable to demonstrate the transverse portion of the duodenum".

Regarding the treatment, FUKUSHIMA (1946) reported two dead cases of this disease after the gastro-jejunostomy. YOSHIOKA (1939) reported that if the genesis



Fig. 4 The postoperative gastro-jejunography.
A.: Anastomosis

of this disease seemed to be acute gastroduodenal atony, the gastro-jejunostomy should be avoided. On the contrary, many cases of this disease were successfully treated with the gastro-jejunostomy hitherto in Japan. For example, MUTO performed the HACKER's posterior retrocolic gastro-jejunostomy for two cases, ARAKI the anterior antecolic gastro-jejunostomy and YOSHIOKA the WOELFLER's anterior antecolic gastro-jejunostomy together with BROWN's enteroanastomosis. Successful results were obtained in all of these cases. While, KURU (1956) devised a new operative method and got a good result, i. e., he cut the duodenum at the portion of the stenosis, and resutured them in end-to-end in front of the superior mesenteric vessels

In our case, the PAYR's disease and the movable elongated sigmoid colon were associated, we are of the feeling that the unstable vegetative function, gastroatony and visceroptosis might play a important role for the occurrence of this disease. Moreover a factor which causes the PAYR's disease is considered the ptosis of the transverse colon. We considered, therefore, these two diseases can appear with each other.

Regarding the diagnosis of our case, the fluoroscopy, especially the isolated duodenography was the best method for the diagnosis of this disease.

As to the treatment, if only the anastomosis between the stomach and the jejunum were carried out, the food would enter into the duodenum to give rise the symptoms again. The resection of the stomach with retro-colic gastro-jejunal anastomosis will make the duodenum free from the passage of foods and so that duodenal juice which will be the content of the duodenum after the operation would enter into the jejunum more easily. Moreover the slight atonic gastroptosis was found in our case. We performed this mode of operation. The patient's chief complaints disappeared and a satisfactory result was obtained with it.

SUMMARY

(1) We made the report of a case, 31-year-old unmarried female, nurse, of the arteriomesenterial duodenal stenosis with the PAYR's disease and the movable elongated sigmoid colon.

(2) Our case was diagnosed preoperatively by the x-ray studies with the use of contrast media, especially with the isolated duodenography.

(3) On laparotomy, the duodenum especially its transverse portion was found enlarged, and its distal end was pressed backwards against the spinal column by the superior mesenteric blood vessels, so that only an index finger could hardly pass through this part of the duodenum.

(4) In our case, the labile vegetative function, gastroatony and visceroptosis were considered as the most important factors in the genesis of this disease.

(5) By the resection of the stomach with the retrocolic gastrojejunostomy (BILLROTH II), a satisfactory result was obtained.

References

- 1) Araki, c.: An additional research for the acute arteriomesenterial duodenal stenosis, Arch. f. jap. chir., 16, 3, 467, 1939.

- 2) Fujinami, S.: The examination of the stomach and the intestine, using x-ray, III., Arch. f. jap. chir., **15**, 2, 209, 1938
- 3) Fukushima, K.: On the acute arteriomesenterial duodenal stenosis, Nihonrinsho, **4**, 169, 1946
- 4) Haberer, H.: Arteriomesenterial duodenal stenosis, Erg. d. chir. u. ortho., **5**, 463, 1913
- 5) Hagihara, Y.: The surgery of the intestinal organs in the abdominal part, 1954
- 6) Kuru, M.: The duodenal-jejunal transflexuration for the arteriomesenterial duodenal stenosis, J. Jap. Surg. Soc., **54**, 4, 639, 1956
- 7) Muto, N., Taketani, R.: On the acute arteriomesenterial duodenal stenosis, J. Jap. Surg. Soc., **32**, 1684, 1932
- 8) Nakao, H.: A case of the arteriomesenterial duodenal stenosis, J. Jap. Surg. Soc., **31**, 603, 1930
- 9) Ogasawara, K., Suzuki, H., Akashi, K.: Five cases of the chronic arteriomesenterial duodenal stenosis, Rinsho-shokaki-byogaku, **4**, 3, 151, 1956
- 10) Yoshioka, T.: A case of the arteriomesenterial duodenal stenosis, Arch. f. jap. chir., **16**, 3, 465, 1939

和 文 抄 録

Payr 氏病, 移動性長 S 字状結腸症を伴った 腸間膜動脈性十二指腸狭窄症の 1 例

淀通信病院外科 (院長: 矢吹一男博士)

世良 敏行・安本 裕・岡本 正信

症例: 31才未婚女子。頑固な悪心、嘔吐(胆汁を吐出す)を来して来院。造影剤を用いた胃腸レ線検査、特に十二指腸単独造影法によつて、アトニー性胃下垂症、移動性長 S 字状結腸症を伴った腸間膜動脈性十二指腸狭窄と診断し、開腹術を行つて更に軽度の Payr 氏病を伴っていることを認めた。

われわれの症例では、内臓下垂症、植物神経機能不安定状態が有力な発病機転と考えられる。

治療法として、胃腸吻合術のみを施行したのでは大

部分の胃内容は自然の経路を通つて十二指腸に送られ、再び嘔吐するであろうと考えたこと、胃切除を行つて胃内容が十二指腸へ送られるのを遮断し、結腸後で胃腸吻合術を行うことによつて十二指腸液がより容易に空腸に送られるであろうと考えたこと、更にアトニー性胃下垂症を伴っていたこと、等によつて、胃切除術並びに結腸後胃空腸吻合術を施行し好結果を得た。