獨協医科大学越谷病院小児外科のあゆみ

2014 年

獨協医科大学越谷病院小児外科

目次

＊ 表紙は医局旅行（輪行）の帰りに立ち寄ったヴェルニー公園から横須賀軍港を臨む

巻頭言：歩み寄る影の警鐘

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2014年は久しぶりに学問的興奮のうちに過ごした1年であった。新たな事実の発見に胸が騒いだと言ってもよい。

私が小児がんの勉強を始めたころ、小児がんの発生や病因についてはほとんど何も解明されていなかった。当時、最も興味のあった神経芽腫も“enigmatic tumor（不可解な腫瘍）”と言われ、見た目には同じでも短期間のうちに患児を死に至らしめるものもあれば、跡形もなく自然に消えていくものもある謎の腫瘍とされた。しかし、その後わずか30年ほどとはいえ学問は長足の進歩を遂げ、腫瘍は遺伝子異常を原因に発生し、その性質の違いは遺伝子異常の相違に起因すると理解されるようになった。したがって小児がんは腫瘍の性質をしっかりと見極めたうえで治療することが重要で、実際、悪性度に応じた適切な治療が行われるようになり治療成績は向上した。

しかし、小児がんの発生、つまりなぜ腫瘍が生まれて間もない幼い命を蝕むのかについては、いまだ解かれていない謎が多い。もちろん成人がんについては喫煙、食物や飲酒・運動などの生活習慣、感染、化学物質、ホルモン、放射線・紫外線など様々な要因が長年にわたり作用し発がんの原因になると知られている。小児がんに同様の外的要因（環境要因）が存在するとしても、その曝露期間は胎児期を含めても数ヵ月からせいぜい数年である。そんな短期間の曝露で果たしてがんになるのだろうかという疑問があり、生まれながらにもつ遺伝子レベルの異常（遺伝的素因）が小児がんの発生にはむしろ大きく関与すると考えられ、私自身もそのように理解してきた。

ところがその認識は低出生体重児と肝芽腫の関連の発見によりあらためられた。出生後の酸素投与が肝芽腫の発生に原因する可能性を見出し、小児がんの発生にも環境要因が大きく関与すると実感した。勿論、これはすでに何回も書いたり話したりしたことだが、最近、これに加え新たに重要な事実を見出した。近年、わが国では肝芽腫が増加し、今やその頻度は80年代の2倍近くになっているのである。しかもこれは低出生体重児における肝芽腫の増加だけでは説明できない顕著な増加である（PAPS 2014で発表、J Pediatr Surg, in press）。集団の遺伝的素因が短期間で大きく変化するはずはないので、やはり胎児期から周産期にかけての環境要因が肝芽腫の増加に原因していると考えざるを得ない。

最近、環境ホルモンの影響で停留精巣が増えているとする説がある。知らない間にこどもたちに歩み寄る影があるとすれば、その警鐘を鳴らすのは私たち医療者の役目である。

1 年間の代表的論文

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ORIGINAL ARTICLE

Safety and efficacy of selective sac extraction method of inguinal hernia repair in children: results of a prospective study

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Abstracts

Purpose A prospective study was conducted to confirm the safety and efficacy of the selective sac extraction method (SSEM) of inguinal hernia repairs in children.

Methods Primary endpoints of the study were the incidence of any complication related to the SSEM, or hernia recurrence. Secondary endpoints included the success rate of the SSEM, length of incision at the end of operation, and duration of operation. The incidence of contralateral manifestation of hernia was also examined.

Results Between October 2009 and December 2011, a total of 317 repairs, 145 male repairs and 172 female repairs, were performed by applying the SSEM. There were three operative conversions, and the success rate of the SSEM was 99 % in both male and female patients. The length of incision ranged from 4.0 to 12.5 mm (median 6.0 mm) and was ≤7.0 mm in 93 % repairs. The incisional length for male repairs ranged from 4.0 to 12.5 mm (median 6.0 mm) and was ≤7.0 mm in 86 % repairs, while it ranged from 4.0 to 9.0 mm (median 5.5 mm) in female repairs and was ≤6.5 mm in 96 % repairs. The duration of the operation for unilateral repair ranged from 9 to 66 min (median 21 min). Eighty percent of repairs were examined 6–44 months (median 12 months) after the operation. There was one (0.4 %) recurrence among 250 repairs and two (1.7 %) cases of testicular dislocation among 115 male repairs. Contralateral hernia presented in 19 (9.5 %) of 199 patients with unilateral hernia who underwent the follow-up.

Conclusions The feasibility of the SSEM was reconfirmed, and it was revealed that the complication and recurrence rates were low and acceptable. The SSEM is safe and effective, and should be a standard method for repairing inguinal hernia in children.

Keywords Inguinal hernia repair · Selective sac extraction method (SSEM)

Introduction

We previously reported a novel technique for inguinal hernia repair in children, the selective sac extraction method (SSEM), by which satisfactory surgical and cosmetic results could be achieved without laparoscopic assistance [1, 2]. The SSEM is a technique of minimal surgical invasiveness in which only the hernia sac is selectively extracted from an extremely small skin incision instead of elevating the entire cord structures in male hernias. In female hernias, the round ligament is elevated and the hernia sac is extracted without pulling the surrounding muscular and fascial tissues out of the wound. In a retrospective study, the technical feasibility of the SSEM was examined, and the success rates were 88 % in male and 96 % in female repairs [1]. Follow-up interviews revealed no adverse events such as postoperative complications or hernia recurrence, while excellent parental satisfaction with wound cosmesis was evident.

Since it is essential to confirm the safety and efficacy of the SSEM in a prospective manner before it is used as a

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standard procedure, a study was conducted. In this manuscript, we report the low, acceptable rates of operative complications and hernia recurrence of the SSEM, along with improvements in the success rates and operative techniques, and propose that the SSEM should be a standard procedure for inguinal hernia repair in children.

Materials and methods

Study design

The subjects were children with inguinal hernia aged <16 years. Those with incarcerated or irreducible hernia, sliding hernia of the ovary (hernia with palpable ovary at repair), and hernia associated with an undescended testis or large hydrocele were excluded. The number of patients was expected 300 during 2 years. Patients were to be examined in outpatient clinics two times postoperatively, at 1 week and at 1 year after surgery. Primary endpoints of the study were the incidence of any complication related to the SSEM including wound infection, testicular dislocation, and testicular atrophy, or hernia recurrence. Secondary endpoints included the success rate (rate of completion) of the SSEM, length of incision at the end of the operation, and duration of operation. The incidence of contralateral manifestation of inguinal hernia during the follow-up was also examined.

The study was reviewed and approved by the institutional review board of Dokkyo Medical University Koshigaya Hospital and informed consent was obtained from the parents or guardians of all the recruited patients.

Patient recruitment

Between October 2009 and December 2011, 357 consecutive inguinal hernia repairs were performed in 333 patients. Study participation was declined by 16 patients and another 22 patients were excluded from the study according to the exclusion criteria: sliding of the ovary ($n = 10$), hernia associated with an undescended testis or large hydrocele ($n = 6$), incarceration or irreducible hernia ($n = 5$), and an unknown reason ($n = 1$). Excluding these 38 patients, a total of 295 patients, 139 males and 156 females, were recruited. The patients' ages ranged from 1 month to 13 years (median 3 years). There were 22 (7.5 %) patients with bilateral hernia, and a total of 317 repairs, 145 male repairs and 172 female repairs, were performed by applying the SSEM.

SSEM procedure

The procedure of the SSEM was previously reported [1, 2]. In brief, in male patients, the spermatic cord is located by palpation to determine the site of the skin incision. In inguinal hernia, the spermatic cord is thickened and feels as if two pieces of silky cloth are being rubbed [2]. A small skin crease incision is made above the internal inguinal ring, in other words, where the spermatic cord overlies the pectineal line of the pubic bone lateral to the pubic tubercle. The superficial fascias and the aponeurosis of the external oblique muscle are elevated and incised. After the inguinal canal is opened, the cremaster muscles are gently separated from the inguinal ligament and the spermatic cord is identified. In the SSEM, the entire cord structure is not pulled out of the wound. The internal spermatic fascia is exposed between cremasteric muscle fibers, and the hernia sac is identified and selectively extracted from the small wound by pushing back the muscular and fascial tissues into the wound. The sac is then opened and transected, and only its proximal part is extracted from the wound. After the neck of the sac is freed sufficiently, a probe inserted into the sac points in the direction of the pelvis (stands perpendicularly), indicating that the internal inguinal ring is just beneath the wound. The vas and the testicular vessels are seen at the bottom of the proximal sac without exposing their entire length. At least the vas should be identified before the sac is doubly ligated with non-absorbable sutures. Finally, the wound is closed layer to layer.

In female patients, an incision is made where the hernia sac is felt passing over the pectineal line by palpation. The inguinal canal is opened and the hernia sac is identified between muscle fibers. The entire sac is selectively extracted from the wound, and opened to confirm the round ligament and the presence or absence of sliding of the ovary or fallopian tube. The sac is doubly ligated without transecting the hernia sac, and the wound is closed.

Statistical analysis

Statistical analysis was performed with SPSS20.0J (SPSS Japan Inc, Tokyo, Japan). Mann–Whitney's U test was applied to compare continuous variables. p values <0.05 were defined as significant.

Results

Success rate, length of incision, and duration of operation

Following an intraoperative diagnosis of hydrocele, the procedure was converted to hydrocele repair in three patients; two male and one female. In the remaining 314 repairs, 143 male and 171 female, the SSEM was completed and the success rate was 99 % in both male and

female patients. The length of incision at the end of the 314 repairs ranged from 4.0 to 12.5 mm (median 6.0 mm), and was ≤7.0 mm in 292 (93 %) repairs. The incisional length for 143 male repairs ranged from 4.0 to 12.5 mm (median 6.0 mm) and was ≤7.0 mm in 123 (86 %) repairs, while it ranged from 4.0 to 9.0 mm (median 5.5 mm) in 171 female repairs and was ≤6.5 mm in 165 (96 %) repairs. The length of incision was significantly shorter in female than in male patients ($p < 0.001$).

The duration of the operation for unilateral repair ranged from 9 to 66 min (median 21 min). Operative times for female repairs ranged from 9 to 46 min (median 19 min) and were significantly shorter than for male repairs, 10 to 66 min (median 26 min) ($p < 0.001$).

Operative complications, recurrence, and contralateral manifestation of hernia

There were no intraoperative complications. All the patients visited outpatient clinics 1 week after the operation, and it was confirmed that there were no early postoperative complications such as wound infection.

The second visit was scheduled to be 1 year after the operation, but some patients did not show up. They were called and reminders were sent. Finally, 250 (80 %) of 314 repairs, 115 male and 135 female repairs, were checked at the second follow-up examination 6–44 months (median 12 months) after the operation. Among them, there was one (0.4 %) hernia recurrence in a female patient, which was diagnosed 3 months after the operation. The patient underwent reoperation 4 months after the SSEM and a laparoscopic examination suggested that insufficiently high ligation of the sac was a possible cause of the recurrence. Among the 115 male repairs, there were two (1.7 %) cases of testicular dislocation, but there was no testicular atrophy. These two patients underwent the SSEM at the age of 3 months, and the ipsilateral testis ascended after the hernia repair. Testicular dislocation was diagnosed 6 and 7 months after the operation, and both patients underwent orchidopexy.

Regarding contralateral manifestation of hernia, there were 199 patients with unilateral hernia who underwent the second follow-up, and 19 (9.5 %) patients presented contralateral manifestation during the follow-up periods.

Discussion

Inguinal hernia in children can now be repaired through an extremely small skin incision [1, 2]. In male repairs, injuries to the vas and testicular vessels are avoidable because their entire lengths are not exposed, which is one of the advantages of the SSEM. After we learned several techniques to facilitate this method in the process of technical innovation, it became easier to accomplish the SSEM. An important technique is precise location of the skin incision by palpating the spermatic cord or the round ligament [2]. In children with inguinal hernia, these structures can be easily identified because they are thickened due to the presence of the hernia sac. The skin incision should be placed where they pass over the pectineal line of the pubic bone, which is the nearest point to approach the internal inguinal ring through an incision made on the aponeurosis of the external oblique muscle.

The other techniques are to extract only the proximal part of the hernia sac in male patients and determine the level of sac ligation by locating the internal inguinal ring. The level where the sac is ligated is usually determined by identifying the preperitoneal fat tissue. In the SSEM, it is quite important to identify the internal inguinal ring by probing. It should be remembered that when the sac is freed highly enough a probe inserted into the proximal sac stands perpendicularly, indicating that directly beneath is the location of the internal inguinal ring.

In our previous retrospective study, the SSEM was successful in 92 % of repairs, and the success rate was 88 % for male patients and 96 % for female patients [1]. The procedure was not successful and was converted to a conventional open method in 8 % of repairs. The reasons for conversion were a huge or thickened sac, obesity or thick subcutaneous tissue, malpositioning of the skin incision, and so on. Meanwhile, in this prospective study which was conducted in consecutive patients and excluded those who declined study participation or met exclusion criteria, we achieved 99 % success rates in both male and female repairs. The SSEM was converted in three patients in whom the diagnosis was intraoperatively changed to hydrocele. Because hydrocele repair is more delicate than hernia repair, closing a small and thin processus vaginalis that is easy to tear, the SSEM was not indicated in hydrocele repair. The incisional length at the end of operation was shorter than that in the previous study. The median length was shortened by 1.5 mm in male patients and 1.0 mm in female patients. In addition, the duration of operation also tended to be shorter than that of the previous study. All these factors reflect our development and improvement of the operative techniques for SSEM.

The main purpose of this study was to examine the safety and efficacy of the SSEM. There were no intraoperative or early postoperative complications. However, testicular dislocation requiring orchidopexy was experienced in 1.7 % of male repairs. Surana et al. [3] reported that orchidopexy was performed in 3 of 104 boys who underwent inguinal hernia repair, due to iatrogenic cryptorchidism. According to this paper, diminished size of the testis was also observed in 6.7 % of patients. In our series,

no testicular atrophy was revealed by the follow-up examination. If there was a significant injury to the testicular vessels during the operation, 1-year follow-up would be sufficient to detect a vascular compromise and resultant atrophy of the testis. The testicular size was checked by comparing the ipsilateral testis to the intact contralateral testis. In case of bilateral repairs, they were compared to the standard testicular size for the patient's age. As for an injury to the vas, not only because it was always identified and pushed back into the inguinal canal before ligation of the sac, but also because only a small part of it was exposed during the operation, the possibility of vas injury was thought to be extremely low unless injured apparently during the operation. Regarding hernia recurrence, our rate of 0.4 % was consistent with the reported incidences, 0–3.8 % [4, 5]. We think that our complication and recurrence rates were relatively low and could be deemed acceptable when compared to the reported incidences.

The SSEM is a technique of minimal surgical invasiveness. Hernia repair can be performed through a minimal incision without using laparoscopy or any special needles [2]. Invasiveness in regard to postoperative pain was not evaluated in this study, because a caudal block was routinely performed with anesthesia and was seemingly effective for analgesia. Recently, a mini-scar inguinal herniotomy, which was technically quite similar to our SSEM, was reported [6]. The authors concluded that the method was safely accomplished in highly selected patients and that it improved parents' satisfaction regarding cosmesis. We think that our approach to achieve excellent surgical and cosmetic results without laparoscopic assistance seems to be gaining global acceptance little by little. This prospective study reconfirmed the feasibility of the SSEM and demonstrated its low complication and recurrence rates. We conclude that the SSEM is safe and effective, and it should be a standard method to repair inguinal hernia in children.

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Successful living donor liver transplantation for giant extensive venous malformation

Hatanaka M, Nakazawa A, Nakano N, Matsuoka K, Ikeda H, Hamano I, Sakamoto S, Kasahara M. Successful living donor liver transplantation for giant extensive venous malformation.

Abstract: We report our success in employing LDLT as a course of treatment for extensive hepatic VM. A 14-yr-old pediatric patient presented at our hospital with nosebleed, fatigability, orthopnea, and abdominal distension. He had a history of right hemicolectomy with primary anastomosis due to VM of the transverse colon at age seven. Coagulation abnormalities were apparent, characterized by high international normalized ratio of prothrombin time, decreased fibrinogen level, increased FDPs, and D-dimer. T2-weighted magnetic resonance imaging revealed numerous, variable-sized high signal intensity nodules. Abdominal ultrasonography and CT scan showed hepatomegaly with multiple hypo-echogenic lesions and arteriovenous shunting in the liver. Doppler ultrasound showed hypokinetic flow in the hypo-echogenic lesions of liver. Immediate LDLT was performed to avoid spontaneous rupture and DIC. The right lobe of the liver was implanted with temporary portocaval shunt to prevent intestinal congestion and bleeding. Pathologic examination of the explanted liver confirmed the presence of an extensive hepatic VM. The postoperative course was uneventful, and the patient remained symptom-free with normal liver function throughout the 12-month follow-up period.

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Key words: pediatric liver transplantation – living donor liver transplantation – Kasabach–Meritt syndrome – hepatic venous malformation

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VM are the most common form of benign neoplasm in the liver. VM affects boys and girls equally with a reported incidence of 1–2 per 10 000 births and a prevalence of 1%. Most VM (95%) are sporadic and can occur anywhere in the body, but are frequently seen in the head and neck (40%), extremities (40%), and trunk (20%) (1). VM of the colon and liver, although rare, have been previously reported (2, 3). Most VM are minor and require no treatment with close follow-up (4).

Mulliken et al. divided vascular anomalies into two distinct categories: vascular tumors (characterized by endothelial proliferation arising from preexisting vessels) and vascular malformation (congenital abnormalities in vasculogenesis with normal endothelium). Vascular tumors are characterized by rapid growth during infancy with abnormal endothelial proliferation, followed by gradual involution. In contrast, vascular malformation is represented by lesions composed of dysplastic vascular channel. Although not always apparent, vascular malformation is present at birth. It grows proportionally with the patient's age and does not spontaneously regress (4).

Depending on the type of vessel involved, the vascular malformation group was subdivided into high-flow (such as arteriovenous malformation and arteriovenous fistula) and low-flow lesions (such as venous and lymphatic malformations) (5). This classification was approved by the ISSVA, and it represents the current guidelines in the management of vascular lesions (5–7). Most VM of the liver are asymptomatic; however, some (especially large lesions) cause various complications, such as KMS (8–10).

Often times, VM are incidentally detected during abdominal imaging for other unrelated clinical conditions (1, 8–12). Accurate diagnosis of

Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase; CT, computed tomography; DIC, disseminated intravascular coagulation; FDP, fibrin degradation product; ISSVA, International Society for the Study of Vascular Anomalies; KMS, Kasabach–Meritt syndrome; LDLT, living donor liver transplantation; LT, liver transplantation; SMA, smooth muscle actin; VM, venous malformations.

hepatic VM remains a controversy, and confusion exists with regard to their classification and treatment. Current treatment options of hepatic VM include surgical resection, sclerotherapy, and LT (12–14). Treatment outcome is dependent on correct diagnostic evaluation and treatment strategy. To date, there is no standard treatment for VM of the liver in children. Decisions concerning therapeutic approaches are considered on a case-by-case basis. For our pediatric patient, we performed a successful LDLT for extensive hepatic VM.

Patients and methods

A 14-yr-old male patient was admitted to our hospital with nosebleed, fatigability, orthopnea, and abdominal distension. He had a previous history of right hemicolectomy due to VM of the ascending colon seven year ago. At that time, multiple hemangiomas in the liver without hepatomegaly were pointed out by CT and abbreviation scan (Fig. 1a). Histology of the resected colon specimen revealed concomitant with cavernous hemangioma (VM). During the seven-year follow-up period, he had no specific symptoms related to hemangioma of the liver.

At admission, laboratory tests showed normal liver function: AST 20 U/L (normal range: 14–30 U/L), ALT 11 U/L (normal range: 9–36 U/L), γGTP 41 U/L (normal range: 9–48 U/L). Platelet count was slightly decreased (12 900 per cubic millimeter). However, coagulation abnormalities were evident: high international normalized ratio of prothrombin time of 1.27, decreased fibrinogen level of 75 mg/dL (normal range: 217–339 mg/dL), increased FDPs of 168.2 μg/mL (normal range: 0.0–5.0 μg/mL) and D-dimer level of 162.2 μg/mL (normal range: 0.0–1.0 μg/mL). T2-weighted magnetic resonance imaging revealed numerous, variable-sized high signal intensity nodules. Those findings were compatible with extensive hepatic VM. Abdominal CT scan revealed hepatomegaly with the liver extending into the pelvic cavity (Fig. 1b). The estimated liver weight by CT volumetry was 7142 mL (678% of the standard liver volume (15)). Hemangioma was not present in other organs. Doppler ultrasound showed hypokinetic flow in the liver's hypoechogenic lesions with mild intrahepatic arteriovenous shunting.

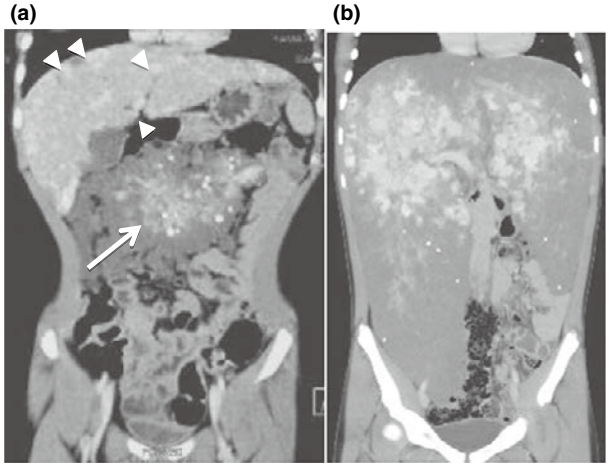

Fig. 1. (a) Enhanced abdominal CT at first visit (aged seven) shows a mass with calcification in the transverse colon (*arrow*) and multiple enhancing liver lesions (*arrowheads*). (b) Seven yr after (aged 14), the liver extends into the pelvic cavity. Whole liver volume was 7142 mL, as determined by CT volumetric analysis.

Results

LDLT

Prompt treatment modality was required in view of the potential risk of spontaneous rupture and DIC. As liver lesion was spread diffusely, surgical resection or sclerotherapy was deemed unsuitable. We decided LDLT to be the best treatment for the patient.

The patient's 38-yr-old mother with identical blood type acted as the donor. The liver graft, a right lobe that weighed 447 g (1.02% of graft-to-recipient weight ratio), was implanted. During the recipient hepatectomy, a temporary portocaval shunt was introduced to prevent intestinal congestion and massive bleeding. Significant reconstruction (with native left portal vein and donor ovarian vein interpositioning) was performed on the right inferior hepatic vein and segment 5 of the hepatic vein to avoid potential congestion in the graft liver. The explanted liver weighed 1449 g (Fig. 2). The operative procedure lasted 10 h and 54 min, and blood loss by patient was 266.5 mL/kg. During the transplantation, 24 units of red cell concentrates (3, 360 mL), 20 units of fresh frozen plasma (2400 mL), and 20 units of platelet were used as hemocomponents.

Histological findings

Explanted liver showed diffuse lesion consisting of cavernous vascular spaces. The cavernous walls were composed of fibrous tissue containing

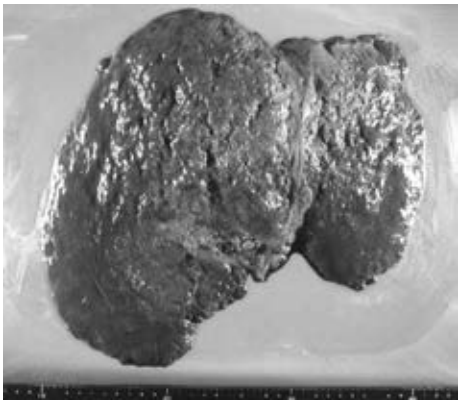

Fig. 2. Gross finding of the explanted liver.

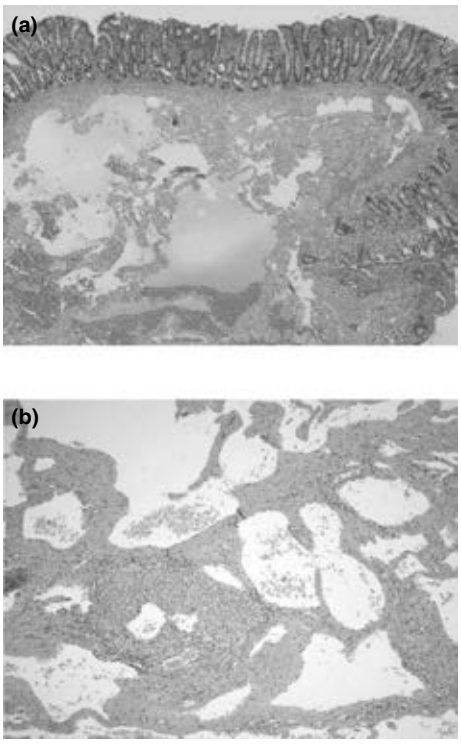

Fig. 3. Histological findings of the colon (a) and liver (b) (hematoxylin and eosin staining; original magnification a: ×40, b: ×100). Both show vascular malformation (cavernous hemangioma) with varying-sized vascular spaces lined by flattened endothelial cells. (b) Hepatic lesion contains trapped bile ducts and foci of parenchyma.

liver parenchyma and smooth muscle. Elastic lamina was unclear. Thrombosis with occasional formation of phleboliths was seen. Immunohistochemistry was positive for SMA, as well as for CD34 and CD31 in the thin, single-layered endothelium on the surface of the cavernous wall (but negative for D2-40, Prox1, and GLUT1). These findings indicated that the cavernous walls were derived from veins and displayed aberrant, irregular thickening.

Outcome

According to ISSVA classification (7), the final pathological diagnosis was VM of the liver (Fig. 3). The postoperative course was uneventful. Coagulation abnormalities disappeared four months after LT. During the 12-month follow-up period, the patient reported no further complications and progressed with normal liver function.

Discussion

Multiple, progressive, rapidly growing cutaneous hemangiomas may be associated with widespread visceral hemangiomas in the liver, lungs, gastrointestinal tract, brain and meanings. This presentation, referred to as diffuse neonatal hemangiomatosis, carries the risk of systemic complications, including high-output cardiac

Table 1. LT for giant VM

Study	Age (yr), Gender	Patient(s) characteristics	Indication	Previous therapies	Outcome
Klompmarker et al. (20)	27 yr Male	Male Size: NA Explant 15 kg	Hepatomegaly	Tranexamic acid, cryoprecipitate infusion	Normalization of liver function and coagulation
Chui et al. (19)	33 yr, Female (a) 43 yr, Female (b)	Size: NA Explant 10 kg (a), 4 kg (b)	Dyspnea (a) Abdominal discomfort (b)	In second case: embolization (n = 1)	Normalization of liver function and coagulation
Longeville et al. (13)	47 yr Male	Size: 25 cm Explant 3.6 kg	Bleeding after teeth extraction	Resection failed	Normalization of liver function and coagulation
Kumashiro* et al. (12)	48 yr Female	Size: Na Explant 4.2 kg	Abdominal distention	Nafamostat mesilate, fresh frozen plasma	Normalization of liver function and coagulation
Ferraz et al. (17)	25 yr Female	Size: 46 cm Explant 7.2 kg	Respiratory distress Abdominal distention	Embolization (n = 3)	Normalization of liver function and coagulation
Meguro* et al. (10)	45 yr Female	Size: 15 cm, multiple lesions Explant 4.8 kg	Abdominal distention	Embolization (n = 2)	Normalization of liver function and coagulation
Vagefi et al. (11)	32 yr Female	Size: 23 cm, systemic Hemangiomatosis	Abdominal discomfort	Interferon	Normalization of liver function and coagulation
Van Malenstein et al. (21)	36 yr Female	Size: 24 cm, multiple lesions	Abdominal discomfort	Embolization (n = 5)	Complete resolution of complaints
The present case* (This study)	14 yr Male	Size 30 cm, multiple lesions Explant 7 kg	Fatigability, orthopnea, abdominal distention	None	Normalization of liver function and coagulation

NA, not available.
*LDLT.

failure, hemorrhage, and neurologic defects, accompanied by a high mortality rate. Infants who present with multiple cutaneous hemangiomas should be evaluated for the involvement of other organ systems with close follow-up (16). Our patient did not have a history of cutaneous hemangiomas or diffuse neonatal hemangiomatosis, but histopathology of explanted liver showed extensive VM (4).

Procedures such as radiation, arterial embolization, surgical resection, and LT are typically used for treatment of symptomatic giant hepatic hemangioma (9, 10, 12). In our case, radiation, arterial embolization, and surgical resection were deemed difficult due to preexisting thrombocytopenia and consumptive coagulopathy with extensive VM. It has been reported that the long-term outcomes from such treatment methods are less desirable than those from surgical resection and LT (13, 17, 18). In giant hemangioma/VM, the size of tumor may pose as a considerable risk factor for hepatectomy mainly due to massive intraoperative bleeding (19, 20). Precise preoperative management to decrease tumor size may increase the safety of surgery for extensive hepatic VM (1, 5).

Taking into consideration other literature (10–13, 17, 19, 20) together with our case, we found 10 cases of LT for giant hemangioma/VM with KMS/severe coagulopathy, of which three were male and seven were female (Table 1). Except for our patient, all patients were adults (25–48 yr of age) and received treatment before transplantation. Four patients underwent embolization, one for resection and another was treated with interferon. LDLT, which allows optional timing of transplantation, was indicated in three patients to ensure positive outcome (10, 12). One notable advantage of LDLT is the relatively higher availability of potential donor as compared to cadaveric transplantation, which has a significant mortality rate due to the limitation of available donors.

As our patient's hepatic VM was diffused across a large area, LDLT was determined to be the soundest and most effective treatment strategy. Our findings highlight the importance of LDLT as a treatment strategy for extensive hepatic VM and that periodical follow-up is necessary to ensure optimal timing of transplantation.

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Conflict of interest

None of the authors have any conflict of interest to declare concerning present manuscript.

Authors' contributions

Masahiro Hatanaka and Atsuko Nakazawa: Data analysis and interpretation, drafting of the article; Atsuko Nakazawa and Mureo Kasahara: Concept/design, critical revision of the article, approval of the article; Natsuko Nakano, Kentaro Matsuoka, Hitoshi Ikeda, Ikumi Hamano and Seisuke Sakamoto: Data analysis and interpretation, approval of the article.

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学位論文

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Original

Evaluation of Gastroesophageal Reflux and Gastroesophageal Reflux Disease with Esophageal Endoscopy and Histology in Children

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SUMMARY

Objectives : The roles of esophageal endoscopy and mucosal biopsy in making diagnoses of gastroesophageal reflux (GER) and gastroesophageal reflux disease (GERD) were retrospectively examined in children.

Methods : Thirty-four patients, whose ages ranged from 1 month to 18 years (median, 4 years), underwent diagnostic evaluation of GER/GERD. Group I patients (n=5) had symptoms suggesting GER, but had no underlying abnormalities. Group II patients (n=23) had chronic symptoms suggesting GERD and underlying abnormalities, neurologic impairment (n=22) and post-repair of esophageal atresia (n=1). Group III patients (n=6) were neurologically impaired but had no symptoms and underwent evaluation as a preoperative examination of gastrostomy placement. Reflux esophagitis was endoscopically graded according to the modified Los Angeles classification and grouped into grades≤M, A, and≥B. The results of GER studies and the histologic findings of reflux esophagitis were compared between these groups.

Results : The parameters of 24-h pH monitoring were significantly higher in patients with grade≥B than grade≤M, and endoscopic grades improved after antireflux surgery along with the improvements in reflux index. There were no significant correlations between the endoscopic grade and the percentages of patients in whom histologic findings of reflux esophagitis were present.

Conclusion : Esophageal endoscopy is useful for examining the severity of reflux esophagitis and monitoring the effect of treatment in children with GER/GERD. The modified Los Angeles classification can also be used for that purpose. Although treatment is seldom influenced by the results, histologic evaluation of the esophageal mucosa should be performed to exclude other disorders.

Key Words : gastroesophageal reflux (GER), gastroesophageal reflux disease (GERD), endoscopy, esophageal histology

INTRODUCTION

Gastroesophageal reflux (GER) is common in infants, and physiologic GER resolves spontaneously as a result of functional maturation. In contrast, non-physiologic GER develops in neurologically impaired children as well as children with congenital malformations[1~4].

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Table 1 Characteristics of 34 patients who underwent GER/GERD evaluation

Patient group	n	Age	Gender (M/F)	Underlying abnormality	Symptoms suggesting GER/GERD
I	5	1 month - 11 months (2 months)*	5/0	None	Milk vomiting (n=4), cyanotic spells after milk feeding (n=1)
II	23	4 months - 18 years (9 years)	16/7	Neurologically impaired (n=22), post-surgical repairs of EA and CES (n=1)	Vomiting, hematemesis, dysphagia, or respiratory symptoms such as recurrent pneumonia, stridor, desaturation during feedings, and asthma
III	6	1 year - 12 years (2 years)	1/5	Neurologically impaired, gastrostomy to be placed for nutrition	None

* Range (median)
Abbreviations : GER ; gastroesophageal reflux, GERD ; gastroesophageal reflux disease, EA ; esophageal atresia, CES ; congenital esophageal stenosis

Pathologic GER causes gastroesophageal reflux disease (GERD) that includes respiratory problems, reflux esophagitis, malnutrition and growth retardation.

A comprehensive investigation with contrast study, 24-hour pH monitoring, and esophageal endoscopy is necessary in patients with suspected GERD according to the guidelines for the evaluation and treatment of childhood GER[5~9]. However, particularly in children with neurologic impairment or those with congenital malformations, the presence of GER and its causal relationships with symptoms cannot always be defined with these diagnostic tests.

Esophageal endoscopy is able to determine the presence of reflux esophagitis, stricture and Barrett's esophagus, while excluding other disorders[10,11]. The endoscopic findings of reflux esophagitis are classified according to grading systems[12]. Mucosal biopsies are taken to confirm histologically the presence of esophagitis, fibrotic stricture, or epithelial Barrett's metaplasia. The grading systems, however, have not been validated in children, and there are controversies regarding the usefulness of a histologic examination in pediatric patients[13]. Esophageal endoscopy in children usually necessitates general anesthesia or sedation ; therefore, the benefits of endoscopy must be weighed against the minimal, but not negligible, those risks, and the advantages and disadvantages of the examination should be clarified. In this study, to clarify the roles of these diagnostic tests in children with GER and GERD, the results of esophageal endoscopy and mucosal biopsies were retrospectively examined.

MATERIALS AND METHODS

Patients

Between August 2007 and February 2011, 34 patients underwent diagnostic evaluation of GER and GER-related symptoms or complications (GERD). The ages of the patients, 22 male patients and 12 female patients, ranged from 1 month to 18 years (median, 4 years). Twenty-eight of the 34 patients were neurologically impaired due to disorders such as cerebral palsy, chromosomal abnormalities, multiple congenital anomalies, and acquired encephalitis. The patients were categorized into 3 groups (Table 1). Group I patients (n=5) had symptoms suggesting the presence of GER, but had no underlying abnormalities. The ages of the patients ranged from 1 month to 11 months (median, 2 months), and symptoms were milk vomiting in 4 patients and cyanotic spells after milk feeding in 1 patient. Group II patients (n=23) had chronic symptoms suggesting GERD and had underlying abnormalities. The ages ranged from 4 months to 18 years (median, 9 years), and symptoms were vomiting, hematemesis, dysphagia, or respiratory problems such as recurrent pneumonia, stridor, desaturation during feedings, and asthma. There were 22 patients with neurologic impairment and 1 patient who had undergone repairs of the esophageal atresia and had congenital esophageal stenosis. Group III patients (n=6) were neurologically impaired but had no symptoms suggest-

ing GER. They underwent GER evaluation as a preoperative examination of gastrostomy placement for nutritional support. The ages ranged from 1 year to 12 years (median, 2 years).

GER/GERD evaluation

The GER/GERD evaluation included a contrast study, 24-h pH monitoring, and esophageal endoscopy. Esophageal endoscopy and pH monitoring were performed in all patients, and the contrast study was performed in 33 patients.

For contrast study of the esophagus and the stomach, an almost equal amount of barium or nonionic contrast medium to normal meal was introduced to the esophagus. The stomach was then adequately distended with a contrast agent and air since an insufficiently distended stomach can reduce reflux episodes.

Esophagogastric pH monitoring was performed to detect acid reflux within the esophagus and to measure the frequency and duration of reflux events over a 24-h period using a Medtronic Digitrapper^{TM} pH 400 (Asahi Biomed, Co., Tokyo, Japan). Monitoring was performed essentially according to the guidelines of the Japanese Society for Pediatric Neurogastroenterology[6]. Medications that alter gastric pH, such as histamine H_2-receptor antagonists and proton pump inhibitors, were stopped at least 72 h before the study. A two-channel pH probe was introduced to simultaneously monitor esophageal and gastric pH profiles. The monitoring condition was unrestricted and daily habits were allowed to replicate the patient symptoms. Meals, body position, and sleeping/awaking were recorded. The results of pH monitoring were interpreted by reflux index, reflux episodes (the number of refluxes in 24 h), long reflux episodes (the number of refluxes continuing more than 5 min in 24 h), and duration of the longest reflux, all of which were automatically calculated by the Polygram 98 Diagnostic Workstation software for the Digitrapper^{TM} pH 400. The reflux index reflects esophageal acid exposure time and was defined as the percentage of time during which pH was less than 4.0 in the esophagus. The normal limit of the reflux index was set at 4.0%, according to the 95th percentile value in normal children. It was thought that symptoms were associated with reflux events when their timings were very close or the symptom index[14] was high, and the correlation as well as the reflux index was taken into account when GERD was diagnosed.

Esophageal endoscopy

Esophageal endoscopy was performed to evaluate reflux esophagitis and examine other abnormalities. Endoscopic visualization of reflux esophagitis was in the form of mucosal breaks (erosion and ulceration), and was graded according to the modified Los Angeles (LA) classification[12]. Briefly, grade N is a normal finding, grade M ; minimal changes, grade A ; one or more mucosal breaks (each no longer than 5 mm) confined to one mucosal fold, grade B ; at least one mucosal break more than 5 mm in length, but mucosal breaks are confined to one mucosal fold and not continuous between the tops of two mucosal folds, grade C ; at least one mucosal break is continuous between the tops of two or more mucosal folds but not circumferential, and grade D ; circumferential mucosal breaks. A stricture due to reflux esophagitis appears as a white annular infundibular narrowing with a central lumen surrounded by actively inflamed or pale mucosa. Hiatal hernia can be recognized by locating the diaphragmatic ring and the Z-line.

Histologic evaluation of reflux esophagitis

For the histologic evaluation of reflux esophagitis, mucosal specimens were taken by grasp biopsy from the most damaged parts of the esophagus. Esophageal mucosa 1 cm above the esophagogastric junction was also taken. Histologic findings were classified into normal, esophagitis, scar formation, and mucosal columnar metaplasia (Barrett esophagus). The presence of esophagitis was suggested when papillary elongation (papillae reaching into the upper-third of the epithelium) or intraepithelial inflammatory cell infiltration were observed. Basal zone hyperplasia was not included in the criteria of reflux esophagitis in this study since it was sometimes difficult to objectively evaluate the thickness of the basal zone of squamous epithelium. The numbers of infiltrating cells and eosinophils were counted and considered significant when the count was more than 20 in a high-power field (HPF).

Laparoscopic Nissen fundoplication

Laparoscopic Nissen fundoplication was a routine

Table 2 Management and outcome of patients based on GER/GERD evaluation

Patient group	n	Contrast study		Reflux index	Endoscopic grades of reflux esophagitis	Histologic diagnosis (normal/ esophagitis)	Treatment	Follow-up	Outcome
		GER	Hiatal hernia						
I	5	4 (80)*	2 (40)	5.2 - 25.2 (6.4)**	N/M (n=5)	1/3	Conservative	11 months - 36 months (28 months)	All symptom-free
II	23	20 (87)	13 (57)	0 - 56.2 (14.9)	N/M (n=7) A (n=7) B/D (n=9)	0/20***	Fundoplication (n=18) Tracheostomy (n=1) Conservative (n=4)	0.5 month - 53 months (31 months)	Alive (n=20) Dead (n=3)
III	6	4 (67)	1 (17)	0.3 - 9.0 (1.7)	N/M (n=4) A (n=2)	0/2	Gastrostomy (n=5) Gastrostomy with fundoplication (n=1)	1 month - 54 months (39 months)	All alive without additional surgery

* Numbers in parentheses indicate percentages of patients.
** Range (median)
*** Scar formation and Barrett esophagus were diagnosed in 2 patients and 1 patient, respectively.

procedure performed as antireflux surgery. It was indicated in patients with GERD that could not be managed with medical treatments. It was also indicated when the presence of GER was confirmed by the pre-gastrostomy work-up studies. Under laparoscopic view, the procedure was started by dividing the gastrohepatic ligament, leaving the hepatic branches of the vagal nerve intact. The distal esophagus was dissected, taking care not to injure the vagal nerves, and mobilized to secure 3 to 4 cm of intra-abdominal esophagus. The diaphragmatic crura were approximated by stitches with non-absorbable sutures. A gap, into which an instrument of 5 mm in diameter could be inserted, was left between the wall of the esophagus and the inner rim of the diaphragmatic crus. The gastric fundus was then mobilized with 1 or 2 short gastric vessels divided, and a tension-free wrap was made by covering the intra-abdominal segment of the esophagus with the anterior and posterior walls of the gastric fundus. Approximation of the fundus was accomplished by 3 or 4 interrupted stitches with non-absorbable sutures, and 1 or 2 of the stitches incorporated the anterior wall of the esophagus. Finally, fundoplication was approximately 2 or 3 cm in length. In addition, gastrostomy was performed when feeding problems were present and pyloroplasty was added in patients with delayed gastric emptying.

Statistical analyses

The endoscopic grades of reflux esophagitis according to the modified LA classification were grouped into three groups : less than or equal to M (≤M), A, and greater than or equal to B (≥B). The results of GER studies and histologic findings of reflux esophagitis were compared between these groups. Mann-Whitney's U-test was applied when comparing continuous variables, and Fisher's exact probability test or the Chi-square test was applied to the categorical data. Statistical analysis was performed with SPSS 20 (SPSS Japan Inc., Tokyo, Japan) and p-values less than 0.05 were defined as significant. This study was reviewed and approved by the institutional review board of Dokkyo Medical University Koshigaya Hospital.

RESULTS

Management and outcome of patients based on GER/GERD evaluation

The results of GER/GERD evaluation, patient treatment, follow-up and the outcome are summarized in Table 2. In Group I, contrast study demonstrated GER in 4 patients who complained of vomiting. Small hiatal hernia was revealed in 2 patients. The reflux index was 25.2 in a patient with hiatal hernia, but ranged from 5.2 to 6.4 in the other 3 patients. In a patient with cyanotic spells after feeding, contrast study failed to

Table 3 Endoscopic grade of reflux esophagitis and results of contrast study and 24-h pH monitoring

	Endoscopic grade of reflux esophagitis			Total
	≤M	A§	≥B	
n	16	9	9	34
Contrast study				
GER	12 (75) ¶	8 (100)	8 (89)	28 (85)
Hiatal hernia	7 (44)	4 (50)	5 (56)	16 (48)
24-h pH monitoring				
Reflux index (% time<pH 4)	7.5±1.8#	14.4±4.1	27.4±6.4*	14.6±2.5
Reflux episodes in 24 h	139.3±23.0	179.7±37.7	235.1±49.0	175.4±20.1
Long reflux (>5 min) episodes in 24 h	3.7±1.2	7.6±2.0	17.9±4.6**	8.5±1.7
Longest reflux (min)	19.8±6.2	49.7±26.0	47.8±11.8***	35.1±8.2

§ Contrast study was not performed in 1 patient.
¶ Numbers in parentheses indicate percentages of patients.
# Mean±SE
Asterisks indicate statistically significant differences when compared with grade≤M. * p=0.007, ** p=0.004, *** p=0.043

demonstrate GER but the reflux index was 7.3. Endoscopic grade of reflux esophagitis was N or M in all patients in this group. Esophageal biopsy was performed in 4 patients, and histology was interpreted as normal in 1 patient and esophagitis in 3 patients. Based on these findings, patients were treated conservatively, followed-up for periods ranging from 11 months to 36 months (median, 28 months), and confirmed to be doing well with their symptoms resolving spontaneously.

In Group II, contrast study demonstrated GER in 20 patients and hiatal hernia in 13 of the 22 patients examined. The reflux index ranged from 0 to 56.2 (median, 14.9), and endoscopic grade was N or M in 7 patients, A in 7 patients, and B or D in 9 patients. Biopsy was performed in 20 patients, and mild or moderate esophagitis was histologically diagnosed in all these patients. Among the 9 patients with grade B or D esophagitis, scar formation was diagnosed in 2 patients and Barrett esophagus in 1 patient. Fundoplication was indicated in 19 patients and performed in 18 patients. One patient was treated conservatively because the parents refused surgical treatments. Gastrostomy was placed in 13 patients and pyloroplasty was added in 1 patient. Of the remaining 4 patients, 1 patient underwent tracheostomy due to severe aspiration and 3 patients with grade N or M esophagitis were treated conservatively. The patients were followed-up for periods ranging from 0.5 months to 53 months (median, 31 months). There were three major complications after fundoplication ; gastric volvulus, pyloric perforation, and GER recurrence due to wrap migration, all of which needed surgical treatment. At the end of the follow-up, 20 patients were alive and 3 patients were dead due to causes probably unrelated to GER, including necrotizing enterocolitis in 1 patient and sudden death in 2 patients.

In Group III, contrast study demonstrated GER in 4 patients and hiatal hernia in 1 patient. The reflux index ranged from 0.3 to 9.0 (median, 1.7), and endoscopic grade was N or M in 4 patients and A in 2 patients. Esophagitis was histologically diagnosed in 2 patients. While gastrostomy with fundoplication was indicated in 1 patient with grade A esophagitis and a reflux index of 9.0, gastrostomy without fundoplication was performed in the other 5 patients who were negative for GER. The patients were followed-up for periods ranging from 1 month to 54 months (median, 39 months), and all were alive without any additional surgery at their last follow-up.

Relationships between endoscopic grade of reflux esophagitis and the results of contrast study and 24-h pH monitoring

The relationships between endoscopic grade of reflux esophagitis and the results of contrast study and 24-h pH monitoring are summarized in Table 3. The endoscopic grade of reflux esophagitis was≤M in 16 patients, A in 9 patients, and≥B in 9 patients. Contrast

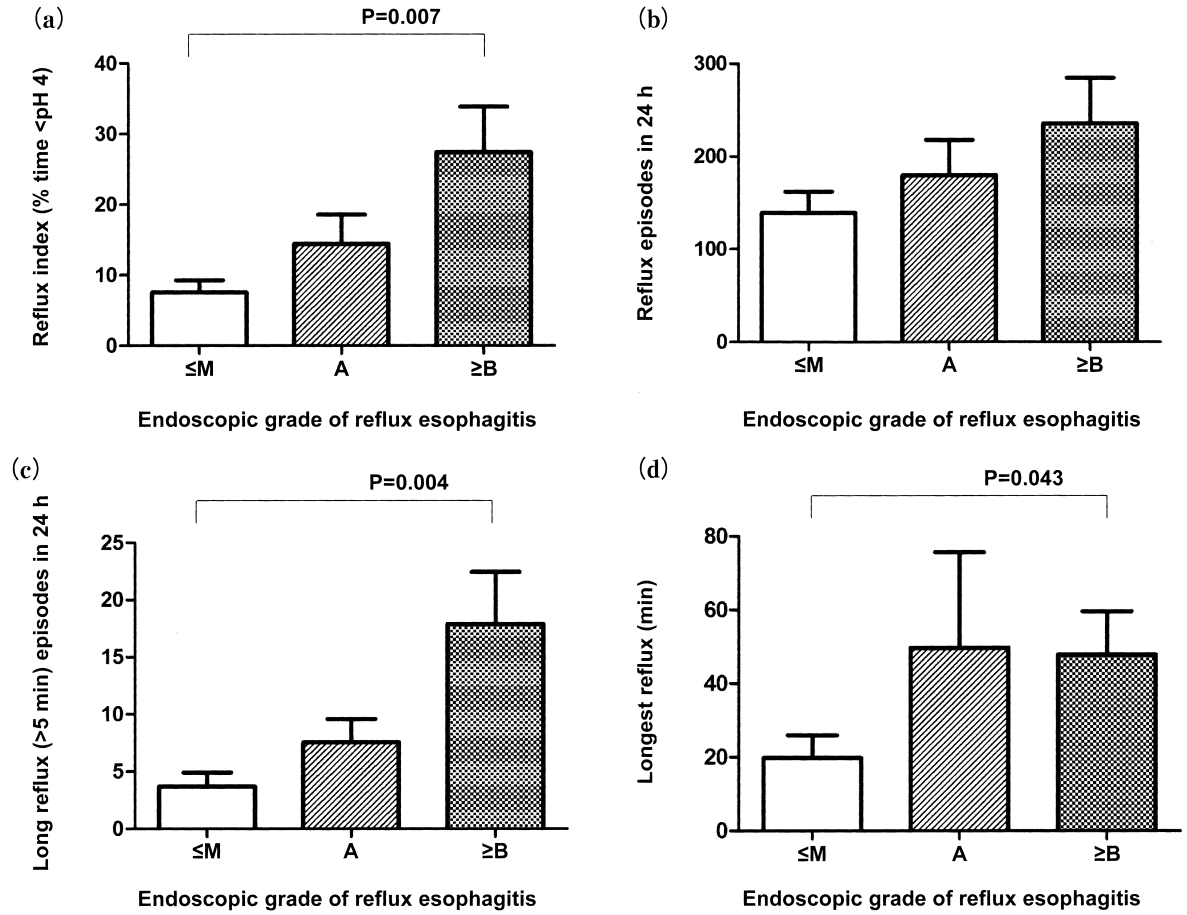

Fig. 1 (**a**) Endoscopic grades of reflux esophagitis and the reflux index, (**b**) the number of reflux episodes in 24 h, (**c**) the number of long reflux episodes (more than 5 min) in 24 h, and (**d**) the duration of the longest reflux. The reflux index, the number of long reflux episodes, and the duration of the longest reflux were significantly higher in patients with grade≥B reflux esophagitis than in patients with grade≤M. Columns with a bar indicate mean and standard error.

study demonstrated GER in 28 (85%) patients and hiatal hernia in 16 (48%) patients of the 33 patients examined. There were no significant correlations between the endoscopic grade of reflux esophagitis and the rate of GER demonstration or the percentage of patients with hiatal hernia.

The results of 24-h pH monitoring of the esophagus were compared between the endoscopic grades of reflux esophagitis. The reflux index, the number of reflux episodes in 24 h, the number of long reflux episodes (more than 5 minutes) in 24 h, and the duration of the longest reflux tended to be higher in patients with higher endoscopic grades. Of these, the reflux index, the number of long reflux episodes, and the duration of the longest reflux were significantly higher in patients with grade≥B than in those with grade≤M (Fig. 1a-d).

Endoscopic grade and histologic findings of reflux esophagitis

The relationships between endoscopic grade and histologic findings of reflux esophagitis are shown in Table 4. Esophageal biopsy was performed in 26 patients excluding 5 patients with grade≤M and 3 patients with grade A. Inflammatory cell infiltration (≥20/HPF) was observed in 5 (45%) patients with grade≤M, 6 (100%) patients with grade A, and 6 (67%) patients with grade≥B, while intraepithelial eosinophil infiltration was recognized in only 1 (9%) patient with grade≤M and another 1 (17%) patient with grade A (Fig. 2.a). Papillary elongation was observed in 4 (36%) patients with grade≤M, 3 (50%) patients with grade A, and 4

Table 4 Endoscopic grade and histologic findings of reflux esophagitis

Histologic findings	Endoscopic grade of reflux esophagitis			Total
	≤M	A	≥B	
n	11	6	9	26
Inflammatory cell infiltration (≥20/HPF)	5 (45) §	6 (100)	6 (67)	17 (65)
Eosinophil infiltration (≥20/HPF)	1 (9)	1 (17)	0	2 (8)
Papillary elongation	4 (36)	3 (50)	4 (44)	11 (42)
Scar formation	0	0	2 (22)	2 (8)
Barrett esophagus	0	0	1 (11)	1 (4)

§ Numbers in parentheses indicate percentages of patients.
Abbreviation : HPF ; high-power field

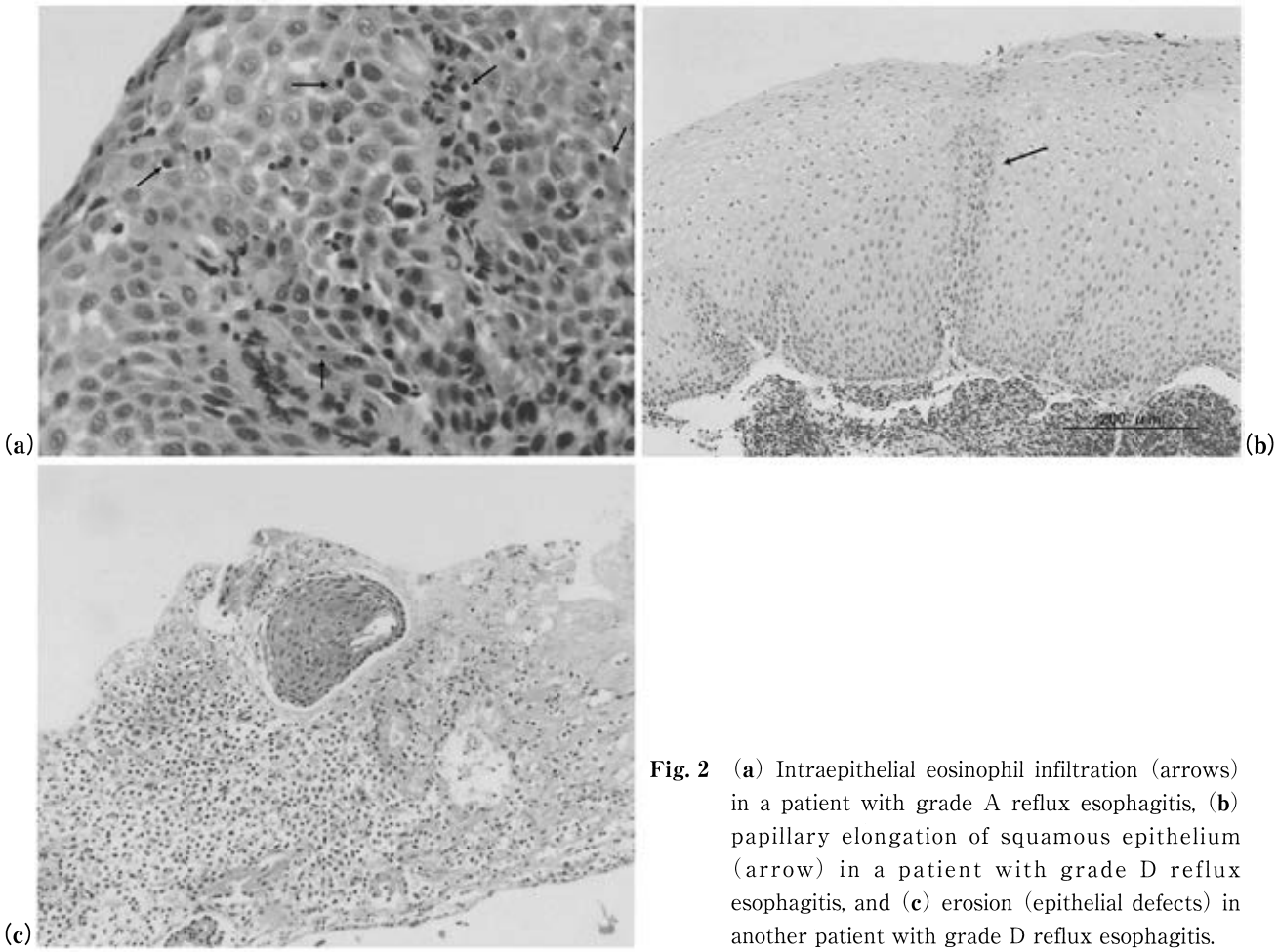

Fig. 2 (**a**) Intraepithelial eosinophil infiltration (arrows) in a patient with grade A reflux esophagitis, (**b**) papillary elongation of squamous epithelium (arrow) in a patient with grade D reflux esophagitis, and (**c**) erosion (epithelial defects) in another patient with grade D reflux esophagitis.

(44%) patients with grade≥B (Fig. 2b, c). There were no significant correlations between the endoscopic grade of reflux esophagitis and the percentages of patients in whom these histologic findings were seen. Scar formation and Barrett esophagus were observed in patients with grade≥B as described above and their incidences were 22% and 11% , respectively.

Esophageal endoscopy after fundoplication

Postoperative esophageal endoscopy was performed in 3 patients with grade D reflux esophagitis for whom an informed consent was obtained from the parents. The periods from fundoplication to examination ranged from 15 months to 34 months. Along with improvements in the level of reflux index, mucosal lesions of the esophagus were conspicuously restored and endo-

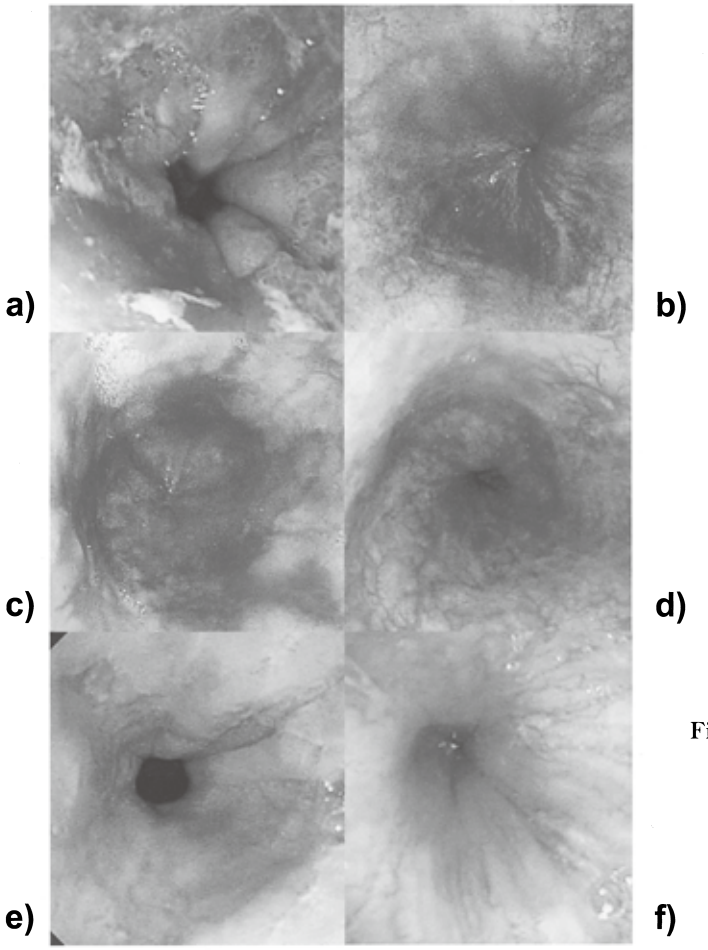

Fig. 3 Endoscopic appearance of the esophagus before and after antireflux surgery. Preoperative appearance of grade D reflux esophagitis (**a**) patient 1, (**c**) patient 2, and (**e**) patient 3. Postoperatively, the mucosal lesions were restored and the endoscopic grade was N or M (**b**) patient 1, (**d**) patient 2, and (**f**) patient 3.

scopic grade was classified into N or M postoperatively (Fig. 3).

DISCUSSION

GER in children causes diverse clinical symptoms. Physiologic GER causes milk regurgitation, vomiting or irritability in infants, but it can be managed conservatively with frequent feeding, thickening of feeds, or postural treatments. Pathologic GER in children, in contrast, causes complications including respiratory symptoms, reflux esophagitis, esophageal stricture, and consequent failure to thrive. Pathologic GER frequently develops in children with neurologic impairment as well as in children with congenital malformations[1~4]. GER is a common problem occurring after repairs of esophageal atresia (tracheoesophageal fistula), diaphragmatic hernia, or abdominal wall defects.

Children with neurologic impairment have abnormalities of the central nervous system that cause a lifelong irreversible physical disability. Muscular spasticity of such children causes an increase in an intra-abdominal pressure. Hiatal hernia is frequently complicated mainly due to high abdominal pressure and defective function of esophageal hiatus. Seizures, scoliosis, and respiratory distress can together promote the development of GER. The functional ability of the entire gastrointestinal tract gradually deteriorates with age, which also predisposes to GER development. Feeding problems and difficulty in swallowing are common.

In this study, patients were categorized into 3 groups. The first group consisted of otherwise normal infants who had symptoms suggesting the presence of GER or GERD. Patients in the second and the third groups were neurologically impaired except for one patient who had esophageal atresia and congenital esophageal stenosis repaired in early infancy. The patient was neurologically unimpaired, but had suffered from dysphagia and hematemesis for a long time due to reflux esophagitis. GER/GERD evaluation was performed in the second group because of the presence of

chronic symptoms suggesting GER or GERD, and it was performed as a preoperative examination of gastrostomy placement for nutritional support in the third group.

To detect GER and assess a possible relationship between GER and symptoms, a comprehensive investigation with several diagnostic studies is routinely performed. Barium contrast study of the upper gastrointestinal series is useful to detect anatomic abnormalities including hiatal hernia. However, it is not sensitive for the diagnosis of GER due to the short duration of the study. Esophageal pH monitoring is widely used and, so far, the most reliable method to sensitively detect pathologic acid reflux in the esophagus. It can measure the frequency and duration of acid reflux over 24-h period. The reflux index is defined as the percentage of time during which esophageal pH is less than 4.0. It reflects the cumulative exposure of gastric acid to the esophagus and is considered the most reliable marker for GER. Esophageal pH monitoring is also able to determine that symptoms are associated with acid reflux events when their timings are close or when the symptom index is high[14]. However, since pH monitoring does not detect non-acid reflux, the reflux index may be within the normal limit regardless of the presence of reflux. Because of the usefulness and limitations of each diagnostic test, it was thought that a comprehensive work-up study is necessary to make diagnoses of GER and GERD, and that all the results of those studies should be taken into account when determining a patient's treatment.

Upper gastrointestinal endoscopy is recommended as the technique of choice in infants and children presenting with symptoms suggestive of reflux esophagitis[10,11]. While it is generally not indicated for uncomplicated GER, endoscopy is regarded as a useful tool to discover esophageal complications of GER such as reflux esophagitis, hemorrhage, stricture, Barrett's esophagus, and adenocarcinoma.

Reflux esophagitis is defined as the presence of endoscopically visible breaks in the esophageal mucosa at or immediately above the gastroesophageal junction[15]. A mucosal break is an area of slough or erythema with a discrete line of demarcation from the adjacent, more normal looking mucosa, and the term was adopted since effective criteria for distinction between the endoscopic appearances of erosion and ulceration could not be defined[16]. There is evidence that visible breaks in the mucosa are a reliable endoscopic finding of esophagitis[15]. The modified LA classification is a grading system for the severity of esophagitis, and is useful for the evaluation of not only the severity of esophagitis but also the response to treatment[12,17]. Although this endoscopic classification is widely used, the system has not yet been validated in children. It seems that the classification is less pertinent in children since childhood reflux esophagitis is rarely as severe as in adults. The present study showed that the endoscopic grade of the modified LA classification was correlated with the results of 24-h pH monitoring. The reflux index, the number of long reflux episodes, and the duration of the longest reflux in patients with grade≥B were significantly higher than those in patients with grade≤M. In addition, postoperative esophageal endoscopy showed conspicuous improvements in mucosal lesions along with improvements in the reflux index after fundoplication. These results indicate that esophageal endoscopy and the modified LA grading system are useful in children as well, and therefore, it is appropriate to consider antireflux surgery based on the endoscopic findings with the results of other GER studies. It was also suggested that esophageal endoscopy was useful to monitor the effectiveness of treatment.

Regarding histology of mucosal specimens of the esophagus, there was no apparent correlation between the histology and clinical characteristics of the patients. Histologic criteria of reflux esophagitis, such as inflammatory cell infiltration and papillary elongation, could be evaluated in children, but the incidence of their appearance were not significantly different between the endoscopic grades. Although the incidences were low, it may be worthwhile to underscore that the sequelae of severe chronic GER, scar formation and Barrett mucosa, were observed only in patients with grade D esophagitis. Generally, the microscopic changes found with reflux esophagitis can be subdivided into epithelial alterations and inflammatory cell reactions[10]. The presence of intraepithelial inflammatory cells, in particular eosinophils, is used for the diagnosis of esophagitis[18]. Basal zone hyperplasia of the esophageal squamous epithelium exceeding 20% of the epithelial thickness and papillary elongation, that is, an increased

stromal papillary length extending into the upper-third of the epithelium, are widely accepted criteria for histologic diagnosis of reflux esophagitis[10,19,20]. However, in children, there seems to be a poor correlation between endoscopic grades and histologic findings, and biopsies may not show histologic changes even in patients with severe erosive esophagitis or abnormal pH study, and vice versa[21~23]. One of the explanations for this poor correlation is a patchy distribution of mucosal lesions[24]. It is important to obtain appropriate tissue samples by visual inspection and multiple biopsies[20,24]. Optimal orientation of biopsy specimens is necessary for precise histologic appraisal[25]. It is known that histologic esophagitis cannot be identified in infants with GER who are younger than 4 months, and papillary elongation and intraepithelial eosinophils become more common with increasing age[22]. The results of the present study may suggest that the histologic criteria of reflux esophagitis in children should be re-evaluated. In the patients of this study, histology hardly contributed to our assessment of the severity of reflux esophagitis and indications for antireflux surgery. Mucosal biopsy, however, was not abandoned since it might be able to exclude esophagitis from other causes. A recent international consensus statement mentioned that microscopic changes present in GERD are not specific to reflux esophagitis and that the primary role for esophageal histology is to rule out other conditions in the differential diagnosis, including eosinophilic esophagitis, infectious esophagitis, Crohn's disease, and connective tissue diseases[26,27].

In conclusion, esophageal endoscopy is useful to examine the severity of reflux esophagitis and to monitor the effect of treatment in children with GER/GERD. The modified LA classification can be used for that purpose in children as well. Histologic evaluation of esophageal mucosa, although treatment is seldom influenced by the results, should be performed so that it may exclude other disorders in the differential diagnosis.

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Ⅰ　教室人事

2014 年 4 月 1 日、石丸由紀君が愛クリニック院長、長谷川真理子君が一般外科の研修を目的にさいたま赤十字病院外科へ学外派遣となった。一方、五十嵐昭宏君は群馬県立小児医療センター外科での研修を終了し学内へ復帰した。したがって、学内は池田、田原、藤野、畑中、五十嵐の 5 名体制となった。

同 9 月 30 日、田原和典君が退職し国立成育医療研究センター外科へ異動するとともに、同 10 月 1 日より朝長高太郎君が東京大学小児外科より 6 カ月間の研修目的で小児外科チームに加わった。また 12 月 1 日より岸　陽子君が小児形成外科の診療、研究、教育の継続を目的に着任した。

形成外科の外来診療、手術、教育を担当、ご指導いただいている群馬県立小児医療センター形成外科部長浜島昭人先生には引き続き特任教授にご就任いただいた。また東京労災病院形成外科の藤田幸代先生には非常勤講師として形成外科の外来診療、手術、教育を継続していただいた。東邦大学医療センター大森病院小児医療センター小児外科教授黒岩 実先生、群馬大学病態総合外科講師鈴木　信君には引き続き非常勤講師として鏡視下手術の教育を担当していただいた。田原和典君も退職と同時に非常勤講師に就任し、必要な診療への対応に備えた。

2014.12.9

医療クラーク・長嶋さんと
秘書・粕川さん

Ⅱ　教室員のひとこと

「小児外科への道」

岸　陽子

2014 年 12 月から獨協医科大学越谷病院小児外科教室に入局させていただきました。私と獨協医科大学越谷病院小児外科をむすびつけたのはホームページでした。それまでは東京慈恵会医科大学形成外科にて講師として主に手足の先天異常と母斑のレーザー治療を行っており、かねてから小児専門の病院勤務を希望しておりましたが、慈恵にそのような勤務先はなく、形成外科部長として厚木市立病院勤務になってから、研究ができなくなったこととあいまって、2 年の予定勤務を超過したころより勤務先を探し始めました。どこの小児医療センターでも募集がなく形成外科医としての求人をあきらめていた頃、ホームページで小児外科でも検索をしたところ獨協医科大学越谷病院小児外科で熱意ある助教の募集があるのを発見いたしました。しかも小児形成外科の手術は小児外科で行っているという驚きの状態で、まさに私が望んでいた理想の教室で、思い切って応募してみました。助教の募集ではありましたが、講師にしていただくという思いがけないプレゼントつきでした。やっと念願がかなって私の理想の勤務先で仕事をすることができ、これ以上の幸せはないと思っております。このような異色な医局員に対し非常に暖かく迎えていただきました医局員、秘書の皆様には心から感謝しております。

2015 年度の目標としましては、まずはダイレーザーを導入し、血管腫の治療をてがけます。またさらに近隣の小児科、産婦人科の先生の協力をいただき、よりいっそう多くの先天異常の患者さまの治療にあたれるよう努力を重ねていく所存です。

「開業医１年生」

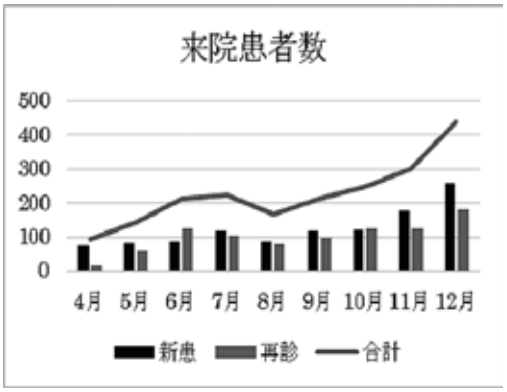
石丸由紀

2014 年 4 月 15 日に所沢市に開業した、医療法人社団　埼忠禎会　愛クリニックで、学外派遣という形ですが、院長として勤務しています。自分を含め、スタッフは全員女性で、また経験者ばかりなので仕事がしやすいです。理事長は同門の先輩です。院内では特殊な検査や治療はできませんが、小児科、小児外科、内科、外科を標榜し、小児から高齢者まで幅広く診療しています。

開業当初は来院数も少なく、いろいろと心配になりましたが、最近は徐々にかかりつけにしてくださる患者さんたちが増えてきたように思います。また、大学で診ていた患者さんのうち数名は引き続きクリニックで診療しています。

当院は NCD 登録施設でもあり、少ないながら外来手術を登録しています。2014 年の手術

件数は７件でした。



2015 年１月には所沢医師会への加入が認められ、定期予防接種や特定健診を行うことができるようになりました。4 月からは所沢市医療センターでの準夜勤務や乳児健診も始まります。そして来年度は所沢市医師会の準看護学校での小児科の講義を担当することとなりました。また、近隣の保育園での勉強会に講師として招かれ、小児の外科的救急疾患と対応について講義しました。所沢市小児科医会では地域の小児科の先生方と交流し、今まであまり知識のなかった一般小児科の診療内容についても勉強しています。

まだまだ力が及びませんが、クリニックと地域の患者さん達のために役に立つことができればと思っています。

愛クリニックホームページ　http://www.saitada-aiclinic.com

「将来の夢」

藤野順子

双子の子どもたちが今春小学校卒業する。クラスのみんなの書いた将来の夢を読みながら『へ〜』などと言って感心している声を出していた。それで思い出したのは私が小学校６年生の卒業文集に書いた夢である。『外交官』だった。父が商社勤めで転勤が多く、その影響があったのかもしれないが、性格的にひとつの場所で何十年も勤め上げる仕事は自分には向いていない気がしていた。

私が大学に入る頃は、ようやく外務省専門職に今の皇太子妃の雅子さんらが初めて女性で合格した時代である。東大生でも一橋生でもない私には努力する気にさえなれなかった。

国家Ｉ種（今も存在するのか？）試験に受かったものの、内定省庁は見つからない。唯一入庁の電話が来たのは、父がコネでお願いしてくれた省の付属の庁からであった。そのおエライさんの返事がイカしてた。『□□大学出じゃないから○○庁ね。』??『だれが行くか！』って思った。断った父の面子は丸つぶれ。

今は医者になっているが、決して将来の夢ではなかった。高校生で文系を選択し、私立大生としてのらりくらりと生活し、やっぱりこんな人生じゃイケナイ！と、とある病院の ICU 入院中に思いつき、で最後は努力して医者になったのだった。

今の６年生の将来の夢を見て思ったのは、とんでもない夢を書いている子の少ないこと。

昔はノーベル賞受賞、宇宙飛行士、プロ野球選手、億万長者（笑)、花嫁さんなどが多かった。今は内科医とか、自衛隊幹部とか、現実的でつまらない。夢をかなえるには現実的で具体的であるのがいいと、イチロー選手の小学校のときの作文が有名になったから、そのせいかもしれない。でも小学生の夢ってもっと大きくていいんじゃないかと思う。外科医だったら、せめて日本一手術のうまい外科医とか、世界から患者が集まるカリスマ外科医とか。

夢はデカく、夢のための努力は具体的、現実的に。私のようにならないために。

「無題」

畑中政博

東日本大震災から 4 年。新聞やテレビでは震災の特集を組み連日報道されているが、月日の流れはなんと早いものかと思う今日この頃である。震災当日は手術中でもう傷を閉じようとしている最中に被災した。大きく揺れる手術台の患者を抑えながら助手の先輩に早く縫合しろと言われ必死に縫合したのを覚えている。その日、宮城の実家から 1 件だけ携帯に家族全員無事とのメールが送られてきたが、実際に連絡が取れたのは 10 日以上たってからであった。宮城の亘理町に住んでいた親戚は 2 週間以上経ってからようやく生存が確認できた。震災から半年後、親戚のいる亘理町を訪ねた。親戚宅から 3 軒先は広大な空き地と瓦礫の山、遠くには海岸線が見てとれた。昔の姿を知っている私にとってその光景は筆舌し難いものであった。

今年、正月に久しぶりに実家へ帰省した。実家の玄関を開けると目の前の壁に亀裂があるのに気付いた。建物自体は影響ないとのことだが、よく見れば小さな亀裂はあちらこちらに生じており、未だに震災の爪痕がはっきりと窺えたことに驚いた。兄貴の自宅に至っては自宅周囲の道路は未だに補修が完全になされていない状況であった。復興はまだまだこれからなのかもしれないと実感した次第であった。

被災地に住む人々にとってこれらの光景は見慣れたものなのだろうが、被災地から遠く離れた人にはおそらく大きな衝撃を受けることであろう。復興はまだまだ先と話す兄貴と復興はある程度進んだものと認識していた私との間にも大きな隔たりを感じてしまった。記憶を風化させないこと、現状を知ることは復興の継続に必要不可欠なのかもしれない。

「継続は力なり」

五十嵐昭宏

出向先から戻り、4 月よりまた越谷での勤務が始まった。医局も病棟もそう大きな変わり

はなく、異動前の流れに乗るつもりでスタートを切った。が、ただ 1 つ、これまでとは景色の異なるものがあった。通勤である。

それまでは悠々自適な車通勤、あるいは病院敷地内の寮からの「徒歩 0 分」が常であったが、これらが不可能となった。職場は自宅から 7km 程のところにある。通常であれば電車通勤なのであろうが、世の中よくできているもので家賃の安いのに比例して「最寄駅」はないに等しい。いやいやそうではない。仮に電車で通うとして、毎日の満員電車なぞ体に毒である（と言い聞かせ)。とすればここはひとつ健康のため、自転車でも乗ってみようということになった。

ほこりをかぶり、クモの巣も張り、忘れ去られていた愛車に光が当たる日がやってきた。ひび割れたグリップを替え、外れかけのライトを新調し、2 年ぶりの復活を遂げた。以前に意気込んで買ったクロスバイクである。お蔵入り間近と思っていたが、いやこれが意外と快適な走りを見せるのであった。朝の渋滞をよそに裏道や住宅地を抜け、地図上のほぼ直線距離をたどる。正味 20-30 分。帰路では途中、まさに心臓破りの坂が立ちはだかるが、慣れとは恐ろしいもの。最近は先行く高校生とレース気分である。雨が降ればレインコート、週 1 回の足立区勤務にも何度か自転車で往復した。何度も経験した 3 日坊主が一転、1 年続いているのには驚いた。

ふと純粋に気になることがある。毎日乗るとして、はたしてどれだけの距離を走っているのか。よい機会なので計算してみた。毎日とは言っても当直で乗らない日もある。逆に休日に出勤することもある。単純に、月から土の週 6 日往復するとして 1 年間で約 4400km。地球 1 周のおよそ 1/9 である。これはすごい！のだろうか…。当科教授の走行距離には足元にも及ばないが、まあ亀の如く続けるのがいいのだろう。

「Red Cross Pride」

長谷川真理子

この 1 年間さいたま赤十字病院外科へ派遣となり、成人の消化器外科と救急医療の研修を行いました。初めての学外派遣で、一人新しい環境へ飛び込むのはとても緊張しましたが、外科部長の先生をはじめ、多くの良き指導者に恵まれ、小児外科とはまた違うやりがいや面白さに気づきました。患者様の多くは悪性疾患で、高血圧や糖尿病などの基礎疾患を持つ方ばかりです。小児の治療で体重が大事であるように、成人では腎機能と心機能に気を使わなければいけないという当たり前の考えが身につくまで、しばらく時間がかかりました。またお看取りの機会ももちろん多く、患者様の最期の迎え方と家族の受容に至る様子などに間近に接し、医療者として他者の人生に関わる責任感を改めて感じたのでした。

しかしなにより働く環境において、多くの若い医師が互いを良きライバルとして切磋琢磨していることが非常に印象的でした。みんな「日赤に来たのだから」「日赤でしかできない経験を」「日赤の人間として」、より多くの技術を身につけたいと強い意気込みと誇りを持って日々の診療にあたっています。当然私も目標を持って入ったわけですが、正直彼らの熱意に圧倒され、しかしそれに感化され、今では私自身も自尊心と競争心が以前より大分強くなったように思います。

またこれまで研修医の指導をしたり、上級医として意見を求められるという経験がなかった私は、1年目の研修医がついたときには少なからず焦りを覚えました。彼の初手術となるヘルニア根治術を成功させるため、解剖学の教科書や縫合セットを用意して時間をかけて教えました。それは私にとってもいい勉強であり、彼が無事に手術を終えたときの達成感はこれまでと一味違う喜びでした。

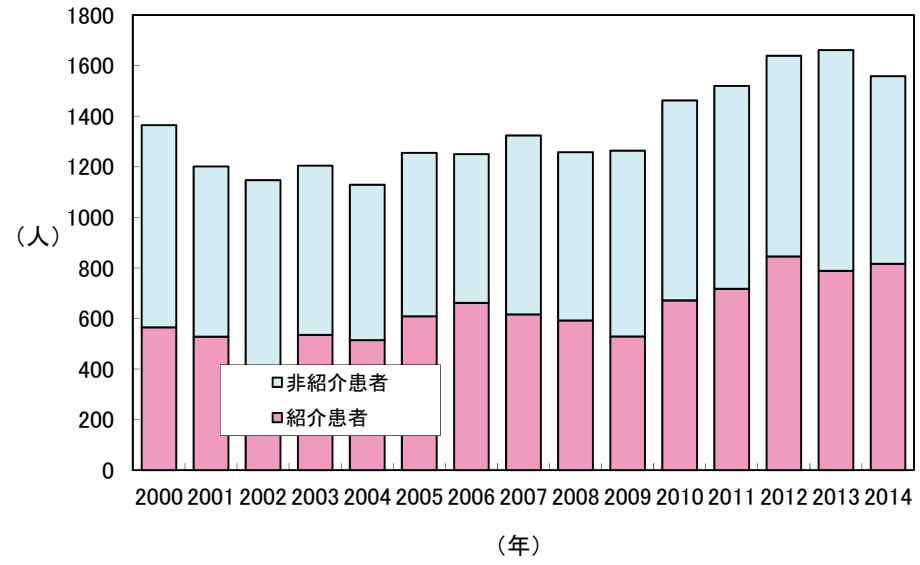
当小児外科は少人数でやっていて、同期や後輩がいないという点で私は随分甘えてきたように思います。学外派遣で良い仲間から刺激を受け、私はまた一つ大人になったのでした。

Ⅲ　診療の集計

1. 外来および入院

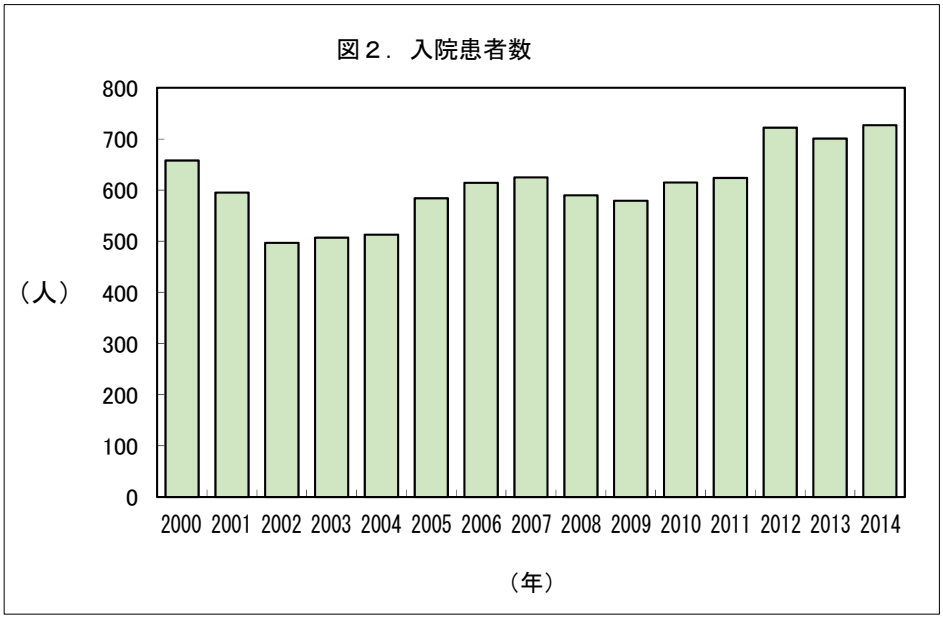
2014 年の外来延べ患者数は 6,091 名、うち新患者数は 1,559 名でその紹介率は 52.3％であった（図 1)。

図１．外来新患数



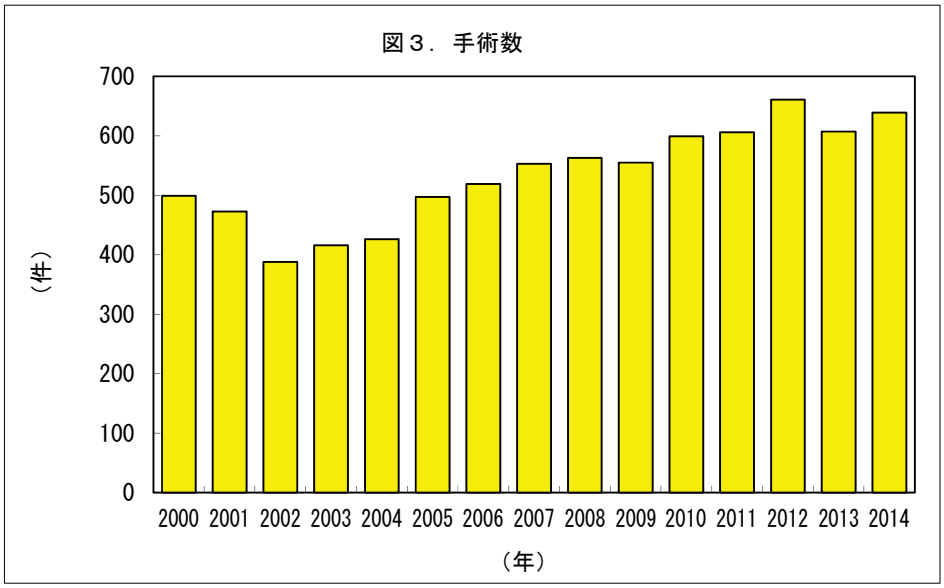
また、2014 年の入院患者数は 727 名、うち新生児入院数 19 名であった（図 2)。

図２．入院患者数



2. 手術

2014 年の手術数（全身麻酔下の内視鏡検査及び処置を含む）は 639 件、うち新生児手術数（内視鏡検査は含まない）は 12 件であった（図 3)。



Ⅳ　研究業績

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2) 中村好一、岡　明、池田　均：（分担研究報告）人口動態統計から見た小児の副腎腫瘍死亡の推移（1999-2012 年データ）．厚生労働科学研究費補助金（成育疾患克服等次世代育成基盤研究事業）「乳幼児の疾患疫学を踏まえたスクリーニング及び健康調査の効果的実施に関する研究」平成 25 年度総括・分担研究報告書、pp25-32 、2014 年 3 月
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2. 学会・研究会への参加

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8) 畑中政博、長谷川真理子、五十嵐昭宏、藤野順子、石丸由紀、田原和典、池田　均、中澤温子：hypoganglionosis におけるマイスナー神経叢の免疫組織化学染色による検討. 第 51 回日本小児外科学会学術集会、2014.5.8-10 (9)、大阪
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15) 五十嵐昭宏、藤野順子、長谷川真理子、畑中政博、田原和典、池田　均：胃軸捻転で発症した嵌頓 Bochdalek 孔ヘルニアの 1 例. 第 8 回埼玉県小児外科研究会、2014. 6. 13、さいたま市

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22) 五十嵐昭宏、藤野順子、長谷川真理子、畑中政博、田原和典、池田　均：胃嵌頓・軸

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24) 畑中政博、長谷川真理子、五十嵐昭宏、藤野順子、石丸由紀、田原和典、池田　均：再発を繰り返した自然気胸の 1 例. 第 25 回日本小児呼吸器外科研究会、2014.10.25、千葉

25) 藤野順子、長谷川真理子、五十嵐昭宏、畑中政博、石丸由紀、池田　均：Evaluation of gastroesophageal reflux and gastroesophageal reflux disease with esophageal endoscopy and histology in children. 第 42 回獨協医学会、2014.12.1、壬生

26) 竹内祥子、小島千春、塚田瑞葉、谷口明徳、海老原慎介、櫻谷浩志、李　翼、木下恵司、池田　均：胎児超音波検査で卵巣嚢腫を疑われた Herlyn-Werner-Wunderlich 症候群の 1 例. 第 131 回埼玉県小児科地方会、2014.12.7、さいたま市

「症例提示」

1) 五十嵐昭宏：遅発性 Bochdalek 孔ヘルニア、症例報告会（越谷市立病院小児科、獨協医科大学越谷病院小児科）、2014.7.15、越谷

2) 畑中政博：肝芽腫、症例報告会（済生会川口総合病院小児科）、2014.7.18、浦和

「座長・司会など」

1) 池田　均：「示唆に富む症例」座長、第 45 回日本小児消化管機能研究会、2014.2.15、大阪

2) 池田　均：ポスターセッション「小児：先天性疾患・その他」司会、第 114 回日本外科学会定期学術集会、2014.4.3-5(4)、京都

3) 池田　均：ビデオセッション５座長、第 51 回日本小児外科学会学術集会、2014.5.8-10（9)、大阪

4) 石丸由紀:「ストーマケア」座長、第 28 回日本小児ストーマ・排泄管理研究会、2014.5.24、東京

5) 田原和典：一般演題座長、第 129 回埼玉県小児科医会　第 156 回日本小児科学会埼玉地方会、2014.5.25、さいたま市

6) 池田　均：一般演題「消化器・肝・胆道 1」座長、第 50 回日本周産期・新生児医学会学術集会、2014.7.13-15（15)、浦安

7) 池田　均：「胃・十二指腸」座長、第 34 回日本小児内視鏡外科・手術手技研究会、

2014.10.30、淡路

8) 池田　均：一般口演「固形腫瘍」座長、第56回日本小児血液・がん学会学術集会、2014.11.29、岡山

9) 池田　均：ポスター「固形腫瘍」モデレーター、第56回日本小児血液・がん学会学術集会、2014.11.30、岡山

3. 研究助成等

1) 平成 26 年度厚生労働科学研究費補助金成育疾患克服等総合研究事業、「乳幼児の疾患疫学を踏まえたスクリーニング及び健康診査の効果的実施に関する研究」、2,000,000円（研究分担者、池田　均）

2) 平成26年度科学研究費助成事業（学術研究助成基金助成金）（挑戦的萌芽研究）「腫瘍幹細胞増殖制御に基づいた横紋筋肉腫治療戦略の開発」、100,000 円（研究分担者、池田　均）

3) 平成 26 年度文部科学省科学研究費補助金（基盤研究 C)、「先天性消化管閉塞性疾患における好酸球性炎症の検討」、100,000円（研究分担者、池田　均）

4. 学位

1) 藤野順子：乙第733号、Evaluation of gastroesophageal reflux and gastroesophageal reflux disease with esophageal endoscopy and histology in children（食道内視鏡及び組織学的検査による小児の胃食道逆流並びに胃食道逆流症の評価）

Ⅴ　教育関連の活動

1. 学生実習

医学部5年生を対象としたbedside learning (BSL)を担当した。朝8時30分のミーティングから診療終了時刻まで学生は担当医とともに過ごした。病歴聴取、診察、検査、手術（術前準備から術後管理まで)、電子カルテの操作、診療記録の記載などの実際を指導した。学生は可能な限り緊急手術にも立ち会い、外来診療、回診、カンファレンス、症例検討会などを通じ小児外科疾患の病態、診断、治療に関する基本的知識が得られるよう、さらにチーム医療の実際を体験できるよう配慮した。学生には個別にテーマを与え、学習した内容を短時間でプレゼンテーションする機会を与えた。

医学部6年生を対象としたadvanced bedside learning (ABL)も担当し、2名の学生が2週間の臨床実習を経験した。

2. 卒後臨床研修

2014 年度は臨床研修科目として小児外科を選択した初期研修医は 0 名であった。

3. 講演・講義

1) 池田　均：神経芽腫：小児外科医の立場から．日本放射線腫瘍学会課題研究 2013/2014「小児がん診療拠点化に伴う小児がん放射線治療の実態調査に基づく効率的な小児放射線治療研修プログラムの構築」研究班講演会、2014.10.18、東京慈恵会医科大学、東京

4. セミナーの開催

1) 第 44 回 小児外科・周産期外科セミナー
講師：獨協医科大学越谷病院小児科、松原知代先生
演題：「小児のアレルギー・感染症のトピックス」
2014.7.11、獨協医科大学越谷病院・第 2 会議室

2) 第 45 回 小児外科・周産期外科セミナー
講師：青葉病院院長、川満富裕先生
演題：「小児外科と医学史について」
2014.12.5、獨協医科大学越谷病院・第 4 会議室

5. 小児外科・病理カンファレンス

1) 第 32 回小児外科・病理カンファレンス、2014.6.20
(1) 1 歳、男児、肝芽腫
(2) 6 ヵ月、女児、胃奇形腫＋卵黄嚢腫瘍
(3) 15 歳、女児、卵巣奇形腫
(4) 16 歳、男性、リンパ管腫
(5) 5 歳、女児、胆道拡張症
(6) 3 ヵ月、男児、皮膚腫瘤
(7) 10 ヵ月、男児、乳児線維性過誤腫
(8) 1 歳、男児、腋下腫瘤
(9) 13 歳、男児、気胸
(10) 25 歳、男性、食道炎
(11) 5 ヵ月、女児、後腹膜奇形腫

(12) 7歳、女児、脂肪芽腫

2) 第33回小児外科・病理カンファレンス、2015.1.9

(1) 1ヵ月、女児、仙尾部嚢胞

(2) 3歳、男児、正中頸嚢胞

(3) 7歳、男児、正中頸嚢胞

(4) 4ヵ月、男児、腎盂尿管移行部狭窄

(5) 26歳、男性、潰瘍性大腸炎

(6) 13歳、男児、木村氏病

(7) 2歳、女児、絞扼性イレウス

(8) 1歳、男児、乳児線維性過誤腫

(9) 11歳、女児、胆嚢捻転

(10) 2ヵ月、男児、ヒルシュスプルング病

(11) 14歳、男児、ヒルシュスプルング病

(12) 1ヵ月、男児、胆道閉鎖症

6. 抄読会

2014年は45回の抄読会(抄読論文数87)を行った。

Ⅵ その他

1. 社会活動等

1) （2013年補遺）池田　均：国立成育医療研究センター倫理委員会調査部会長（2013年7月～8月）

2) 池田　均：厚生労働省健康局がん対策・健康増進課「がん患者・経験者の就労支援のあり方に関する検討会」委員（2014年2月～6月）

2. 寄稿

1) 池田　均：「知の伝統 - 開講70周年記念誌に寄せて - 」. 群馬大学医学部外科学第一講座開講70周年記念誌、pp22-23, 2014

2) 池田　均：「開講25周年、おめでとうございます」. 東京大学小児外科講座開設25周年記念誌、pp75-78, 2014

3) 池田　均：「実験動物センター紀要第14号」発行に寄せて. 獨協医科大学実験動物センター紀要第14号、pp6, 2014年11月

付. PAPS 2014(Banff, Canada)の一コマ

（Ⅳ 2.学会・研究会への参加「発表」を参照、註記：池田）

池田は日本における小児固形がんの頻度の推移について発表した

鈴木君（現群馬大学病態総合外科講師）は当教室による SSEM 臨床研究の結果を発表した（後方に会場となったホテルが見える）

カンファレンスツアーで訪れたコロンビア氷原アサバスカ氷河の突端、左から鈴木君、池田、学外研修中の長谷川君

編集後記

本年報もすでに十数冊を数えるに至った。日々、相も変らず似たような疾患を相手に日常診療を繰り返しているのかと思えば決してそうではなく、少しずつ対象疾患の数や内容は変化しており、地域医療圏の中で当施設の果たす役割も微妙に変化しているようだ。一方で医療する側の知識や技量にも向上（おそらく!）がみられ、研究の興味や対象は変化し、学会発表や業績の内容にも変化のあることが年報から読み取れる。

15 年という時間は短いようではあるが少しずつ、否、確実に世を変え、組織を変え、人を変え、またその内面においては人生観や価値観をも変化させている。医療者として社会に参加することを許され、社会に貢献することを夢見た人生も、もがいてはみても、結局は時代と世、そして己と家族に生きることを余儀なくされ、また心身は変化し、そしてその本来からは決して逃れることのできないことをしみじみと感じ入る。

生きること、それはすべて相対の振幅の中でのできごとと知りながら、やはり極まるところを残したいと願い、 “あゆみ”を積み重ねてきたことをあらためて思う。

（池田）

獨協医科大学越谷病院小児外科のあゆみ　2014 年

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