

Pediatric Surgery Practice During COVID- 19 Pandemic in Turkey

Türkiyede ki COVID-19 Salgını sırasında Çocuk Cerrahisi uygulamaları

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ABSTRACT

Due to the COVID-19 pandemic, almost all elective operations have been postponed. Therefore, only diseases that threaten life/organ have been treated. We desired to discuss the diagnosis and surgical reasons of the patients who were operated in the pediatric surgery clinic for emergency or urgent reasons during this pandemic period, and also the measures to protect the patient and healthcare professionals from COVID-19 infection.

Keywords: COVID-19, pediatric surgery, emergency, treatment

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ÖZET

COVID-19 salgını nedeniyle, tüm elektif operasyonlar ertelenmiştir. Bu nedenle, sadece hayatı / organı tehdit eden hastalıklar tedavi edilmiştir. Bu pandemi döneminde acil veya zorunlu nedenlerle çocuk cerrahisi kliniğinde ameliyat edilen hastaların tanı ve cerrahi nedenlerini ayrıca hasta ve sağlık çalışanlarını COVID-19 enfeksiyonundan koruma önlemlerini tartışmak istedik.

Anahtar Sözcükler: COVID-19, çocuk cerrahisi, acil, tedavi

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INTRODUCTION

After the first positive case of COVID-19 in Turkey was detected on March 10 2020, several precautions were taken. First, the COVID-19 Pandemic Commission was established, and commission has published several guidelines. In compliance, our hospital made plans to adopt numerous radical measures. On March 17, 2020, all upcoming elective surgeries in the clinic were canceled. Because our hospital has sufficient facilities, one block of the hospital was then reserved for the patients with or suspected with COVID-19. This block has an intensive care unit, usual single-patient rooms, an operating room, and diagnostic and outpatient units. The other hospital block has continued to serve normal patients. If the first block were to fill up, the second block would gradually be reserved for patients with COVID-19 as well.

According to the new surgical guidelines for preventing the spread of infection, only patients with life-threatening diseases and cancer patients have been hospitalized and treated in order to minimize the number of patients and healthcare workers in the hospital. Therefore, to prepare for the possibility of infection, the pediatric surgery considered a split into two teams with the goal of assuring continuous care in the hospital by at least one team (1,2). All efforts have been made to treat polyclinic patients via telephone consultation as much as possible. All possible measures (masks, hand disinfectant, isolation, etc.) have been taken to protect patients and employees from COVID-19, and admitted patients have all been given single rooms.

The literature recommends various precautions for treating diagnosed or suspected cases of COVID-19(3,4). However, no literature has addressed the other activities in clinics during this period. As a pediatric surgery clinic, we wanted to share our experiences over this two-month period.

METHODS

This retrospective study analyzes the various precautions used in diagnosing and treating patients who have undergone surgery for emergency reasons or for cancer during the COVID-19 pandemic, between March 17, 2020 and May 17, 2020.

RESULTS

Our clinic performs 3500 surgeries annually and hence about 580 surgeries every 2 months. However, during the studied period of 2 months, only 61 surgical procedures were performed due to the precautions taken to limit the spread of COVID-19.

More than 50% of these surgeries were performed to address appendicitis or an incarcerated inguinal hernia. One patient with ureteropelvic junction obstruction presented on postpartum day 25, and had been diagnosed antenatally. The surgery was performed due to this patient's increasing pelvic anteroposterior diameter (51 mm 23. days of life). Two boys under one year of age presented with a history of button battery cell ingestion two days earlier. One of them had applied to an emergency service twice, and was treated with only palliative outpatient measures. In the second, the diagnosis was made only after an anteroposterior chest radiography was obtained for persistent coughing. The first case had intestinal bleeding due to the button battery located in the stomach, while the other had the button battery located in the esophagus. The batteries were removed without problems via endoscopy. The reasons for the operations performed during the studied period are summarized in Table 1.

Table 1: Our reasons for surgery(n=61) during COVID-19 pandemic.

Procedures	Number	Cause of surgery or procedure
Neuroblastoma excision	1	Malignancy
Esophageal dilation	6	Stenosis due to corrosive substance
Inguinal hernia repair	12	Strangulated and incarcerated hernia (Most of them are younger than 6 months)
Appendectomy	20	Appendicitis
Necrotizing enterocolitis	1	intestinal perforation-ostomy
Intestinal atresia	2	Intestinal obstruction(Duodenal and jejunal atresia)
Biliary atresia	1	Surgical obstructive jaundice
Omphalocele	1	Risk of rupture, hypovolemia and other conditions
Ureteropelvic junction obstruction	1	Anteroposterior diameter > 50 mm
Ureter and renal stone	3	Urinary obstruction
Venous port catheters insertion	3	For chemotherapy and vascular access.
Esophagoscopy and endoscopy	5	Intestinal Bleeding, foreign body for button battery and corrosive substance
Bronchoscopy	2	Foreign body aspiration
Intussusception	1	Intestinal obstruction due to Peutz Jeghers syndrome
Testicular torsion	1	Ischemia
Volvulus	1	Intestinal obstruction due to Meso-diverticular bant

All patients and family members were questioned about signs of COVID-19 (fever, cough, or runny nose) preoperatively, and the patients and their relatives were asked whether they had been in contact with a confirmed or suspected case of COVID-19. In this study, there were indications for COVID-19 PCR testing based on the commission guidelines. All laboratory analyses were completed before surgery; no surgical patient needed a COVID-19 test. The precautions specified in the guidelines were followed before, during, and after anesthesia.

The effect of surgery on susceptibility to COVID-19 and on the severity of symptoms is yet unknown, but an operating room entails different risks of exposure than non-surgical care. Therefore, it is important to limit the number of staff present during surgery on a COVID-19 positive or suspected patient(2). In addition; the staff caring for the COVID-19 patients and that for the usual patients were separated beforehand and did never have contact with each other. For the staff caring for the COVID-19 patients to return back to the care of usual pediatric surgery patients, a negative PCR testing for COVID-19 after a 14-day isolation was entreated.

Based on the characteristics of their diagnoses, all surgical patients were discharged as soon as possible after oral intake, and contact between patients

and healthcare professionals was minimized. While none of our patients, patients' relatives, or staff was infected with COVID-19 during the studied period, patients who were discharged without any problems are still receiving follow-up for their primary diagnosis and for possible COVID-19 infection.

DISCUSSION

Children with COVID-19 have a milder course and better prognosis than adults. Serious symptoms are often seen in children under five years old, especially in children under one year old(5). Therefore, elective surgeries should be postponed for the health of the patient and healthcare staff, as COVID-19 infection is particularly likely in a hospital(1,2). Several countries have currently suspended all elective operations and diagnostic procedures. Especially outpatient surgical interventions were postponed and cancelled(6-8).

In addition, Republic of Turkey Ministry of Health has created pandemic hospitals authorized for the care of only COVID-19 patients, while the remaining hospitals have been available for all elective services under maximum protective measures. Like many others, in our country health system adopted this course with a minimum series of surgery patients consisting of emergency surgery or cancer surgery mostly(6-8). Therefore, emergency surgery was reserved only for diseases that threaten the patient's life (intestinal obstruction, peritonitis, bleeding, etc.), when there is a risk for permanent organ damage or loss of function (ischemia, urinary obstruction, etc.), or when the severity of the disease would increase with delay (cancer). All teams and equipment were instructed to act in accordance with commission guidelines(1,2). Although the guidelines of the COVID-19 Pandemic Commission did not prohibit application to the hospital, a general advice to not apply or to delay application was made. In addition, the delay in patients' application has been also due to patients' fear of going outdoors and being infected.

In order to minimize contamination before and during surgery, all surgical procedures were completed as quickly as possible with minimal staff. In this context, procedures such as vascular access, tracheal intubation, laryngeal mask, nasogastric insertion, and surgery should be performed by experienced personnel with the maximum protective equipment recommended for each procedure. To reduce the risk of COVID-19 contamination, academic staff members over the age of 55 with comorbid diseases such as smoking, high blood pressure, or diabetes did not work in the clinic during this period. When necessary, these staff assisted with treatment via telephone consultations or participated only during surgeries. After surgery, all patients were isolated in single rooms, and follow-up care was provided. All patients were discharged at an early stage after oral intake. During the postoperative period, the skin was closed with absorbable sutures to reduce hospital admissions. All postoperative follow-up visits were done by telephone or WhatsApp messaging using photography. The decision to separate the staff caring for the COVID-19 patients and that for the usual patients and prohibiting their contact with each other also helped to avoid spread of the infection.

In our clinic, in addition to intestinal atresia and neuroblastoma operations, some procedures with a high risk of COVID-19 transmission, such as bronchoscopy, were successfully performed following the precautions described above.

Our pediatric surgery clinic, which has over 25 employees including academic staff members, residents, nurses, and other healthcare professionals, has continued to operate during the pandemic period without suffering from COVID-19 by taking sufficient precautions and using protective equipment.

The continuation of the care of usual patients without COVID-19 is important to avoid the possibility of overlooking diseases that may require emergency or urgent care. In addition, missing a diagnosis may lead to advancement of cancer stage or worsening of other comorbidities. Furthermore, the pediatric patients may not tell their symptoms. Therefore, the continuation of the care of usual patients, particularly the pediatric ones, without COVID-19 as in our country seems to be the right decision.

In addition, the decision of the Turkish health commission not to assign any of the pediatric or women hospitals as a pandemic hospital appears to be appropriate.

CONCLUSION

In addition to adhering to the guidelines of the Republic of Turkey Ministry of Health and the Gazi University Medical School COVID-19 Pandemic Commission, our clinic has been able to successfully perform operations as we have dedicated one complete block of the hospital to COVID-19 patients and the healthcare professionals caring for them.

Conflict of interest

No conflict of interest was declared by the authors.

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