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Did the Covid 19 Pandemic Affect the Diagnosis of Pediatric Solid Tumors?

Covid 19 Pandemisi Çocuk Solid Tümörlerinin Tanısını Etkiler mi?

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ABSTRACT
During the Covid-19 pandemic, hospital admissions have decreased due to non-coronavirus diseases in our country. Therefore, the treatment processes of children with many serious and important diseases have been affected. In this study, the delays in diagnosis and treatment of children with solid tumors due to the delay in admission to the hospital during the Coronavirus Disease 2019 (Covid-19) pandemic period, and the results are presented. It was aimed to draw attention to the delays in diagnosis and treatment of diseases other than Covid-19 by presenting three children (two 17-year-old girls and an 11-year-old boy) with three solid tumors whose diagnosis was delayed due to the Covid-19 pandemic.
In conclusion, patients with non-pandemic complaints should be informed and encouraged to apply to the hospital during all pandemic periods, as in the Covid-19 pandemic.
Keywords: Covid-19, children, solid tumors

ÖZ
Covid-19 pandemisi döneminde ülkemizde de koronavirüs dışı hastalıklar nedeniyle hastaneye başvurular azalmıştır. Bundan dolayı pek çok ağır ve önemli hastalıkları olan çocukların tedavi süreçleri etkilenmiştir. Bu çalışmada, Koronavirüs Hastalığı 2019 (Covid-19) pandemi döneminde solid tümörlü çocukların hastaneye başvuru gecikmesinden dolayı tanı ve tedavisindeki gecikmeler ve sonuçları sunuldu. Covid-19 pandemisi nedeniyle tanısı geciken solid tümörü olan 3 çocuk hasta (17 yaşında iki kız ve 11 yaşında bir erkek) sunularak Covid-19 dışındaki hastalıkların tanı ve tedavi gecikmelerine dikkat çekilmesi amaçlandı.
Sonuç olarak, Covid-19 pandemisinde olduğu gibi tüm pandemi dönemlerinde, pandemik hastalık dışı şikayetleri olan hastaların da hastaneye başvurma konusunda bilgilendirilmeleri ve teşvik edilmeleri gereklidir.
Anahtar Kelimeler: Covid 19, çocuk, solid tümörler

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INTRODUCTION

Coronavirus Disease-2019 (Covid-19), which first appeared in Wuhan, China, in December 2019, has spread rapidly worldwide.[1,2] Each country has taken its precautions in health care. Measures were taken both to prevent the increase in cases and to meet this burden on health services. These changes in the healthcare system have also affected people with diseases other than Covid-19. Admissions to hospitals have decreased, especially due to measures such as the weekend curfew taken on a societal basis, and people's fears about the risk of Covid-19 transmission. This led to decreased hospital admissions if Covid-19 was negative in diseases requiring urgent treatment, such as appendicitis and tumors.[3]
Here, 3 cases with solid abdominal tumors who did not have Covid-19 but were affected by delayed diagnosis due to the Covid-19 pandemic were

shared; and to draw attention to the fact that the pandemic affects the treatment of patients not infected with Covid-19 in a life-threatening way were wanted.

CASE REPORT

Case 1.

A 17-year-old girl was admitted to our emergency department with a complaint of restlessness that developed in the last weeks. In her first anamnesis, she stated that she complained of abdominal distention and weight gain for the last 3 months. The family related these complaints to changes in social and personnel life. Especially due to the quarantine imposed on the pandemic, it was also learned during the interview, we understood that the family did not want to come to the hospital due to fear of the Covid -19 pandemic.

On inspection, the abdomen was extremely swollen, and there was a pronounced abdominal enlargement that gave the impression of 36 weeks of gestation by age. On palpation, the abdominal mass extending from pubis to xiphoid (Figure 1a).

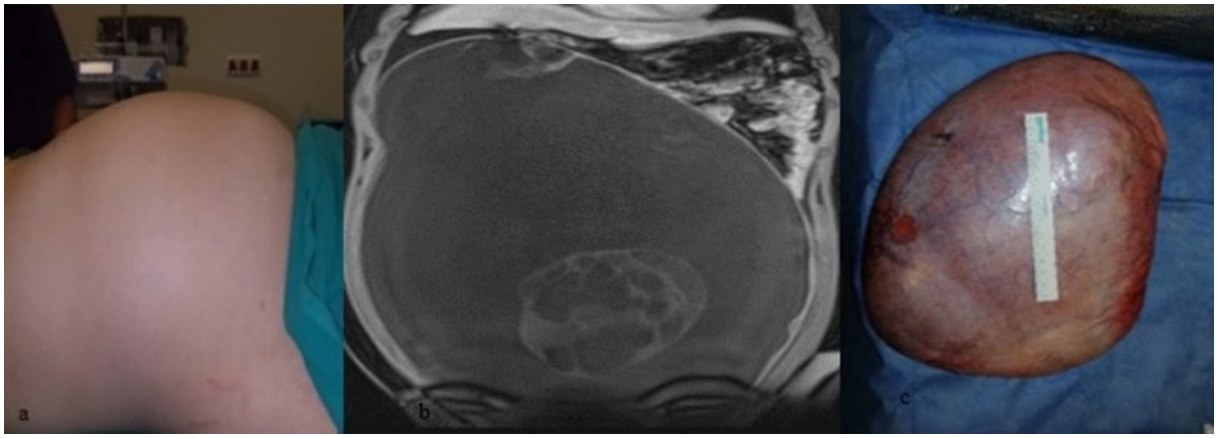

Figure 1. 1a: The appearance of the abdomen before the operation in the first case by inspection; 1b: MRI of a huge mass filling the entire abdomen; 1c: The postoperative appearance of the huge, smooth surface cystic mass.

Abdominal ultrasound (US) and abdominal magnetic resonance (MRI) were performed. A huge mass of 38x26x19 cm in size, predominantly cystic, containing heterogeneous components with cystic-solid areas, was observed (Figure 1b).

The patient was operated on, and the mass was totally removed by right salpingo-oophorectomy (Figure 1c). In surgery, frozen could not be sent due to the official holiday. There was no ovarian tissue that could be separated from the mass. Samples of tissues from the left ovary, peritoneum and omentum were taken, and the sample of intra-abdominal fluid was taken for cytology. The entire abdomen, including the liver and appendix, was evaluated. No other pathology was detected. The histopathologic examination revealed as a mucinous borderline tumor. The patient, who has no problems with follow-up, is in the 19th postoperative month.

Case 2.

An 11-year-old male patient applied to the emergency department due to a convulsion that started after a fall of about 1 meter. The patient was 90 kg and 155 cm tall at admission. It was above the 97th percentile in terms of weight. It was learned from his medical history that he had low back pain for the last three months and gained 30 kilos during the Covid-19 pandemic. However, the situation was attributed to changes in their social and personal life due to the quarantine applied by his family during the Covid-19 pandemic. Orthopedic consultation was requested due to the patient's low back pain. Vertebral tomography revealed several nodules, the largest of which was 1 cm in diameter in both lungs, metastasis, lesions compatible with metastasis in the liver, and a 15 cm mass in the left kidney. We performed MRI of the abdomen (Figure 2a, 2b).

On exploration, an excessive vascular mass that filled the left side of the abdomen up to the midline was ensountered. While dissecting the mass from all areas, mass could not separate it from the renal pelvis, and we observed that it was highly fixed and included the pelvis and ureter. The frozen evaluation of mass sample was stated that it could be an aggres-

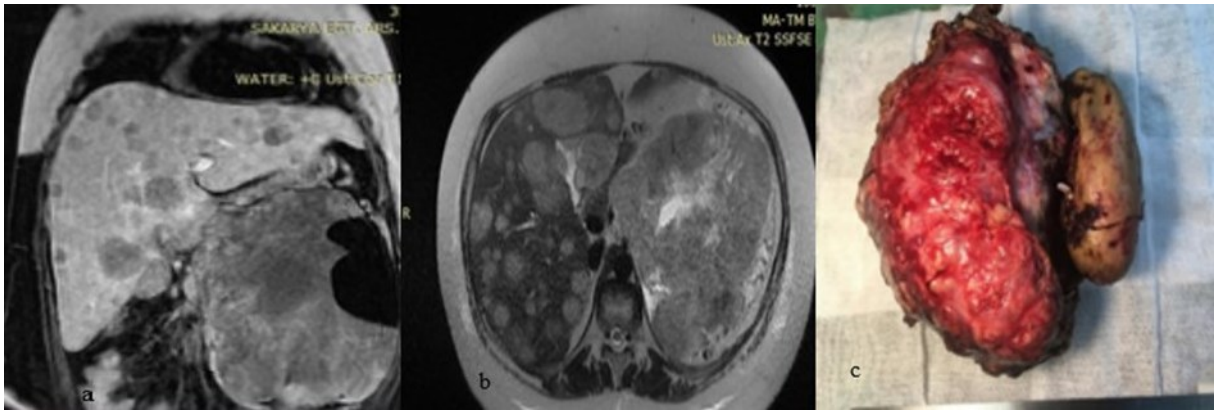

Figure 2. 2a and 2b: MRI imaging revealed the mass and metastasis to the liver in second case; 2c: the postoperative appearance of the mass with a diameter of 15 cm including the renal pelvis and ureter.

sive tumor of mesenchyme origin. The mass was removed with the left nephrectomy, considering it might be a pelvic-derived mesenchymal tumor (Figure 2c). The patient" deteriorated gradually. The patient's histopathology was reported as adrenocortical carcinoma. The patient died 20 days after the first admission due to multiple organ failure.

Case 3.

A 17-year-old female patient applied to the emergency room with her mother for a Covid-19 test because her father was Covid-19 positive. The emergency physician noticed abdominal swelling compatible with six months of pregnancy (Figure 3a). The patient and her family insisted that she gained weight due to the Covid-19 pandemic and that her abdomen was normal. Then USG was performed. A mass covering the entire abdomen was detected in the patient. An intra-abdominal mass extending from the symphysis pubis to the xiphoid process was detected on MRI (Figure 3b). In the exploration performed, a mass covering the entire abdomen originating from the right ovary was detected. The right ovary frozen result was evaluated as dysgerminoma. No tumor was found in the left ovarian tissue. The mass was removed by performing a right salpingo-oophorectomy (Figure 3c). The mass compatible with metastasis was excised behind the uterus. Omentectomy, peritoneal biopsies and cytology were performed. They reported that the pathology of the patient was as dysgerminoma stage 2C.

DISCUSSION AND CONCLUSION

In studies conducted in various countries, it has been shown that during the pandemic period, admissions to pediatric emergency departments decreased, and the operations performed by pediatric surgery decreased.[1,3,4] It has been argued that pediatric surgery

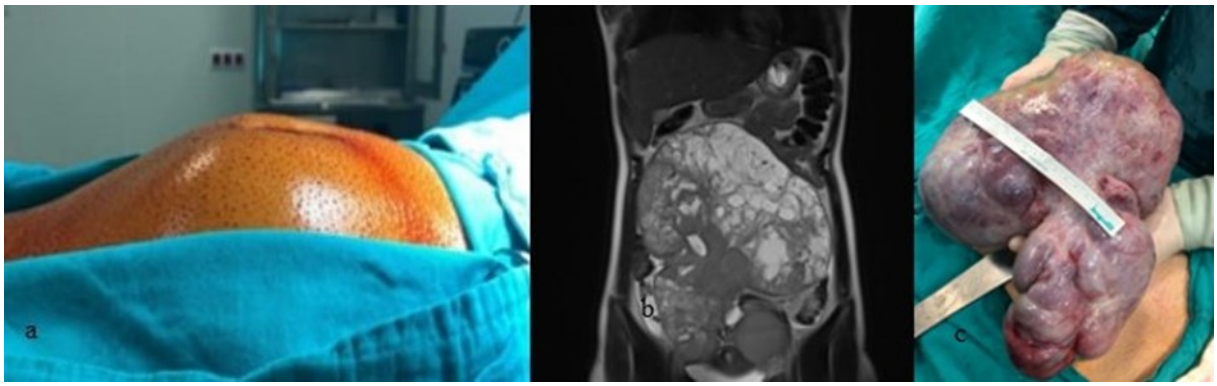

Figure 3. 3a: the appearance of the abdomen before the operation by inspection in the third case; 3b: MRI imaging; intra-abdominal mass extending from symphysis pubis to xiphoid process; 3c: The postoperative appearance of the mass, with a diameter of 30 cm semisolid mass.

has mostly turned into emergency surgery, elective cases are neglected, and the results are unknown. A study conducted in China argued that the operations performed during the pandemic period decreased by more than 50%. The reason for this was interpreted as the curfews imposed by the countries, the concerns of families to encounter the Covid-19 virus when they applied to the hospital, and the postponement of elective cases by healthcare professionals.[5]

During the pandemic period, after the measures taken in our country, it was observed that the number of applications to the pediatric emergency department was decreased in our 3rd step hospital. In the early stages of the pandemic, the pediatric surgery service was closed and transformed into a Covid-19 service. Approximately three months after the start of the pandemic, pediatric surgery service was opened, and elective cases were started to be operated on again, but we still observe that the number of elective cases is lower than before the pandemic due to the low number of referrals to the outpatient clinic.

There is a delay in diagnosis in oncology patients. In most hospitals, the number of new pediatric oncology patients has decreased significantly compared to before the pandemic. In a study conducted in Turkey, the number of newly admitted pediatric oncology patients and oncological surgeries performed significantly decreased compared to before the pandemic. However, interestingly, no significant change was found when the delay in the presentation of pre-pandemic and pandemic oncological patients was compared. It was thought that there might be patients who have not been diagnosed as the reason for the decrease in admission and that they may be diagnosed in the future, or that admission to other hospitals may have increased. Considering the effect of delay in diagnosis on prognosis in oncology patients, it is recommended that these patients should not be overlooked and the society should be informed so that they do not turn into a disaster after Covid-19.[6,7]

In a study conducted in Italy; it was argued that in the period of curfew, childhood solid tumors decreased by 45.7% compared to the previous years. It was argued that the Covid-19 pandemic caused a delay in the diagnosis of tumor cases that could be cured.[8]

As in the literature, late presentation in our cases during the pandemic period draws attention. Although Covid-19 has brought an additional burden to the health system. We made no delay in this process in tumors in our hospital. All the patients who applied were evaluated and treated as before the pandemic. However, our patients were diagnosed late because they attributed their tumor-related complaints to staying at home due to the pandemic and that their complaints were not important enough to go to the hospital during the pandemic period. Although our patients started their treatment immediately after admission and underwent surgery, we lost our patient with adrenocortical carcinoma due to late admission. In our patient with dysgerminoma, pelvic metastasis was present at the time of diagnosis. Except for our case with borderline mucinous cystadenoma, the prognosis of our patients was adversely affected due to late admission.

In conclusion, the Covid-19 pandemic has affected not only patients with this disease but also the diagnosis and treatment of solid masses in children. Admissions to the hospital are delayed because families do not consider the possibility of their child having a disease as serious as Covid-19. Families should be informed that they should not hesitate to apply to the hospital with the fear of Covid-19 transmission, and they should be encouraged to apply to the hospital in their children's non-Covid-19 complaints.

Ethics Committee Approval: The patient/relatives have signed an informed consent/consent form, and the study was conducted following the international declaration, guidelines, etc.

Conflict of Interest: No conflict of interest was declared by the authors.

Author Contributions: Concept-ZAY, Zİ; Supervision-Zİ; Materials-ZAY, ST; Data Collection and/or Processing-ZAY; Analysis and/or Interpretation-ZAY, ST; Writing-ZAY, Zİ.

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