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Multipl Paranazal Sinüs Kırığı İlişkili Rinore ve Kanama Gelişen Menenjit Olgusu

Multiple Paranasal Sinus Fracture-Induced Meningitis Rinorrhea and Haemorrhage

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ÖZ

Menenjit hayatı tehtid eden morbidite ve mortalitesi yüksek bir klinik durumdur. Travmaya bağlı klivus kırığı ve multipl paranazal sinüs kırığı ile gelişen rinore ve menenjit nadir bir hastalıktır. Biz bu çalışmada Yüksekten düşme sonrası multipl paranazal sinüs kırığı ile rinore, kanama ve Klebsiella pneumonia menenjiti gelişen bir olguyu irdeledik.

Anahtar Kelimeler: *Menenjit, kanama, paranazal sinüs kırığı*

ABSTRACT

Meningitis is a clinical condition with high morbidity and mortality that threatens life. Rhinorrhea, haemorrhage and meningitis, which is caused by traumatic clivus fracture and multiple paranasal sinus fracture, is a rare disease. In this study, we investigated a case Klebsiella pneumoniae meningitis with multiple paranasal sinus fracture, haemorrhage and rhinorrhea.

Keywords: *Meningitis, haemorrhage, paranasal sinus fracture*

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INTRODUCTION

Meningitis is a life-threatening infection of meninges with high morbidity and mortality. Immunosuppression, intraventricular shunt, central nervous system surgical intervention, and head or spinal cord trauma can play a role in predisposing factors in the development of meningitis (1,2). ESBL positive Klebsiella pneumoniae meningitis is and clivus fracture are rare. The observed cases are generally the groups of patients who have nosocomial or post surgery (3). Cerebrospinal fluid (CSF) rhinorrhea occurs as a result of the absence of the anatomical barrier between the paranasal sinuses or the nasal cavity mucosa and the meninges. Anterior scalp fractures play an important role in the development of CSF rhinorrhea and CSF fistula (4). In this study, we investigated the case of post traumatic, multiple head fracture, rhinorrhoea meningitis caused by rare Klebsiella pneumoniae.

CASE REPORT

65 years old, male patient, married, retired. He was brought to the hospital with a head injury after falling from a ladder. In the garden of the cottage, the ladder was taken to the hospital by the relative of the third step after falling over his head. The patient, who was followed up in an intensive care unit with an awareness, was hospitalized in the same hospital neurosurgery. Fever with chills have developed. He lost consciousness in the lavobo and developed rhinorrhea, then intubated. He was referred to our hospital for operation with head trauma and fractures. On arrival, the patient was taken to the intensive care unit. The fever was 39 ° C, unconscious, intubated, non-orientated, and non-cooperative. Lumbar puncture was performed in the patient with neck stiffness and cerebrospinal fluid (CSF) rhinorrhea with a preliminary diagnosis of meningitis. CSF Findings: CSF pressure increased, CSF was blurred. Cell count: leukocyte 2100 / mm3, (90% PMNL), erythrocyte was not observed. Leukocytes were seen on microscopic examination with Giemsa and methylene blue. BOS glucose: 7 (40-70 mg / dl), CSF protein: 1008 (15-45 mg / dl), CSF LDH: 210 (0-20 U / L), blood glucose: 198 (74-110 mg / dl) ESBL positive Klebsiella pneumoniae was grown in CSF and febrile blood culture. With the diagnosis of meningitis, meropenem 3x2 gr IV and vancomycin 2x1 gr IV were started. The patient was extubated after 4 days. His fever was fever around 36.5 ℃. His consciousness was recovered and rhinorrhea regressed. There were delusions. The hematoma and the multiple fractures in their radiological imaging were evaluated by neurosurgery and followed up. No additional surgical intervention was performed. On the 14th day of his treatment, he was transferred to the infectious diseases service. During her follow-ups, her agitation and delusions continued. Psychiatric consultation was requested. No additional suggestions were made. Cranial MR Examination: A large hematoma with T1 hyperintense are as in the right frontal region, 55x43 mm in size, and the formation of SAH around this area. Wide vasogenic edema and right frontal horn compression were observed around the lesion. Slight left shift was observed at the level of cingulate gyrus in the midline structures. Haemorrhage was observed in the sulcus in the left temporal and parietal regions. Mucosal thickening and level-forming effusion were observed in the paranasal sinuses and a 7.5 mm defect was observed in the right half of the ethmoid cell. (Figure 1a,1b,2a,2b,2c,3a,3b,3c).

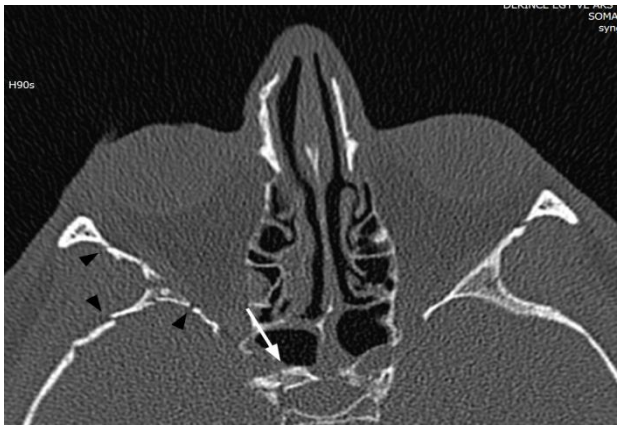


Figure 1(a): Non-contrasted brain CT images of the case, in the axial section obtained in the parenchymal window, a contralateral hypodense lesion area in the left frontal region (black arrow) and a frontal sinus adjacent to the contralateral (white arrow) and hemorrhagic appearance in the sinus liquid is monitored. The right lateral ventricle anterior horn due to contusion edema was pressed slightly. Interhemispheric fissures are hyperdense (black arrow heads) due to hemorrhage.

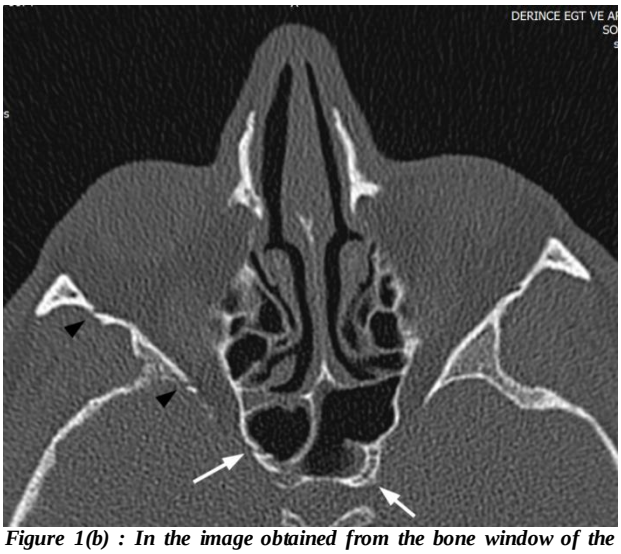


Figure 1(b) : In the image obtained from the bone window of the same level, the displaced fracture lines (white arrow) on the anterior and posterior wall of the frontal sinus and the fracture (black arrow head) lateral to the orbit are clearly observed.

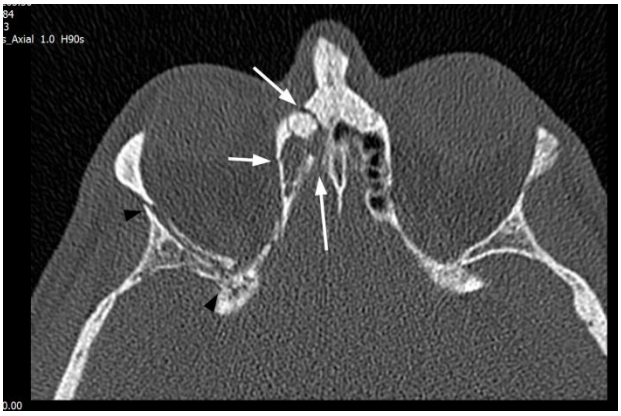


Figure 2(a): Thin section non-contrasted paranasal sinus of the case, starting from the nasal bone, crista galli and frontal sinus base (white arrow) of the fracture line to the posterior right ethmoid cell and sphenoid sinus ceiling (short white arrows).

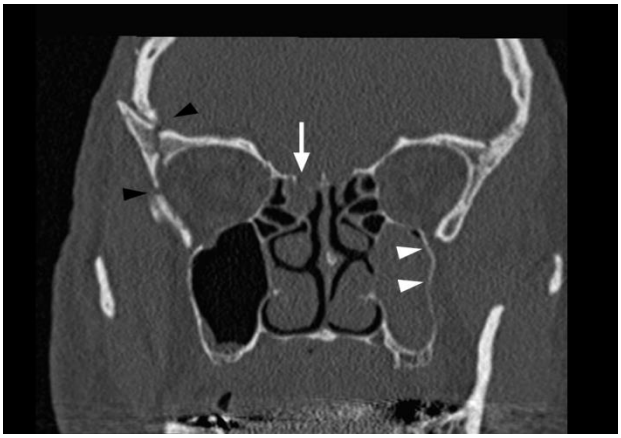


Figure 2 (b): In the coronal paranasal sinus sections from anterior to posterior, forty (white arrow) in the right lamina cribrosis and fluid density in the adjacent ethmoid sinus are noteworthy. As an additional finding, there are multiple broken lines (white arrowheads) on the right orbital wall (black arrowheads) and the left maxillary sinus wall.

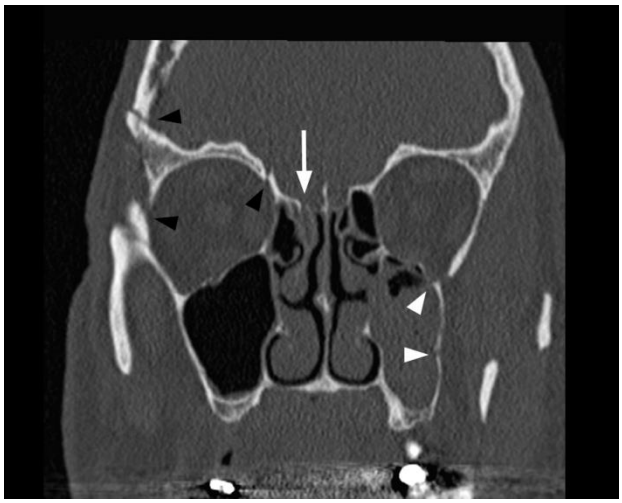


Figure 2 (c): In the coronal paranasal sinus sections from anterior to posterior, forty (white arrow) in the right lamina cribrosis and fluid density in the adjacent ethmoid sinus are noteworthy. As an additional finding, there are multiple broken lines (white arrowheads) on the right orbital wall (black arrowheads) and the left maxillary sinus wall.

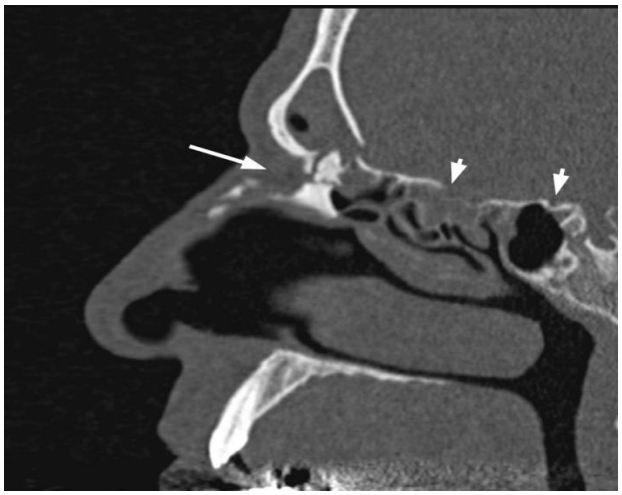
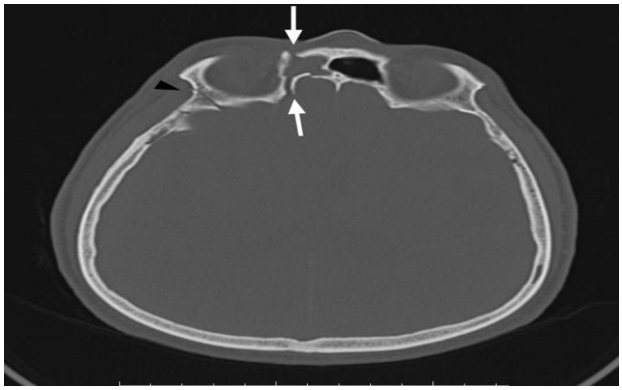


Figure 3 (a, b, c): Multiple small fracture lines (white arrows) starting from the ethmoid sinuses (a) and extending to the sphenoid sinuses (b, c) in the CT sections of the axial paranasal sinus (a) and the accompanying orbital wall (black arrow heads) are tracked.



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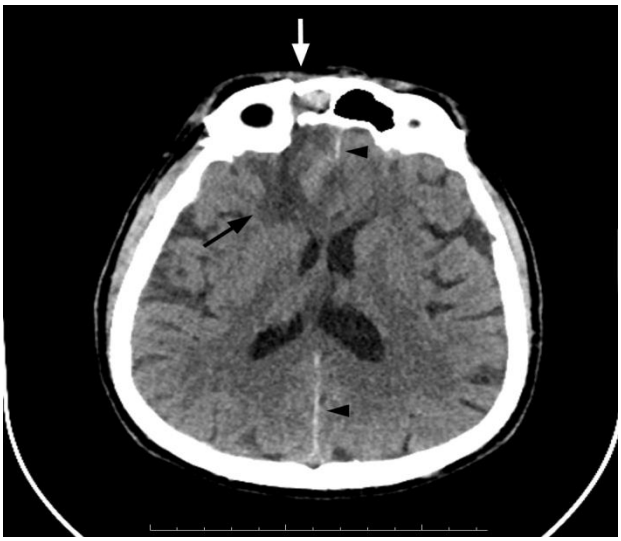

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Nasopharyngeal effusion was observed. Incoming laboratory tests: White blood cell (WBC): 14400 (4-10.6 10^3 µ / L), NE 85.6%, Hemoglobin: 9.1 gr / dl (12-16.8 g / dl), platelet (PLT): 502000 (139000-346000 µ / L), Sedimentation: 103 mm / hour (0-15 mm / hour), C reactive protein (CRP): 114 mg / L (0.0-5 mg / L), Procalsitonin: 0.53, aspartate amino transferase (AST): 31 (0-35 U / L), alanine amino transferase (ALT): 36 (0.45 U / L), gamma glutamyl transferase (GGT): 263 (12-64 U / L), alkaline phosphatase (ALP): 123 (40-150 U / L), lactate dehydrogenase (LDH): 358 (125-245 U / L), Urea: 33 (13- 43 mg / dl), Creatinine: 0.76 (0.7-1.3 mg / dl), PTZ: 14.3 (10-14 seconds), INR: 1.23 (0.8-1.2), Blood gas Ph : 7.52 (7.35-7.45), Pco2: 31 (35-46 mm-Hg), BE ecf: 1.9 (1.8), cLac: 1.37 (0.5-1.6 mmol / L), Hbs Ag: negative, Anti HCV : negative, Anti HIV: negative, ESBL (+) Klebsiella pneumoniae grew in two sets of blood cultures. ESBL (+) Klebsiella pneumoniae was grown in CSF culture. Ampicillin: resistant, cefazolin: resistant, cefuroxim: resistant, cefuroxim axetil: resistant, ceftazidime: resistant, amoxicilin / clavulanic acid: sensitive, meropenem: sensitive, tigecycline: sensitive, trimethoprim / sulfamathoxazole: resistant, imipenem: sensitive, imipenem resistant. On the 7th day of treatment: WBC: 9700, HGB: 9.7, PLT: 574000, CRP: 6.5, on the control lumbar position on the 14th day of treatment: CSF Cell count: leukocyte: 400 / mm3, (90% PMNL) erythrocyte was not observed. CSF glucose: 53 (40-70 mg / dl), CSF protein: 102 (15-45 mg / dl), CSF LDH: 57 (0-20 U / L). CSF culture did not reproduce. Blood culture did not reproduce. Meropenem treatment was completed for 21 days and vancomycin treatment was completed for 10 days. He was discharged with a pneumococcal vaccine. In the cervical CT examination of the patient who had neck pain at the control two weeks after discharge, no additional features were found except trauma-related bulging and degenerative disorders. In neurosurgery outpatient control, in the evaluation of brain tomography imaging, surgical procedure was not planned since the fracture lines decreased and the fracture lines did not occur. Tracking was suggested.

DISCUSSION

Acute meningitis is an important cause of mobidity and mortality at all ages. The cases can occur with bacteria, virus, fungi, and factors can occur by direct planting in the central nervous system, hematogenous, lymphogenous, congenital CNS malformation or trauma, local delivery from neighboring structures or via the nerve. The causative microorganism virulence and the patient's immunocompetent or immunosuppressive condition are also effective in the occurrence of the disease. Although our patient did not have an immunosuppressive condition, she had an infection following a head injury. Klebsiella pneumoniae is not a common factor in the development of meningitis. In a study, in five cases of nine klebsiella meningitis, the causative agent was isolated in sputum or throat culture, and the spread from these was suspected. In another study, a case of forty post-operative Gram negative meningitis episode was evaluated. Thirty-nine of these were suspected as cases with an external ventricular drain or prosthetic device with a V-P shunt (3). It was predicted that the ESBL (+) Klebsiella pneumoniae predisposing factor identified in our case reproduced as a nosocomial agent with the fracture of the head fracture and the paranasal sinuses and brain-CSF barriers. Since the Duramater is attached

to the skull bone inside, infections in this region remain limited, while infection in the subdural distance can spread widely. The CSF glucose level decreases due to the metabolic activity of the microorganism and neutrophil due to impaired transition to cerebrospinal fluid. With increased vascular permeability, the CSF protein increases. In acute meningitis, meninges are congestive. Fibrin and neutrophils are found (7). Computed tomography, which is one of the radiological imaging methods, is useful in the evaluation of cranium bone structures and paranasal sinuses in cases of fracture, and MRI is useful in the evaluation of brain parenchymal structures and soft tissues. Brain parenchyma spread is rare in treatment-initiated patients. Determining the factor in the prognosis of meningitis and starting treatment as early as possible is important for survival and recovery without sequelae.

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