CASE REPORT: A RARE CASE, INTRACRANIAL LIPOMA WHICH CAN BE CONFUSED AS PNEUMOCEPHALUS

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ABSTRACT

We described a patient admitted with head trauma to the emergency diagnosed as incidental intracranial lipoma which can be confused as pneumocephalus. We performed this case report in order to draw attention of emergency medicine physicians because this rare radiological view may cause accidental diagnosis of pneumocephalus in a head trauma patient.

A 53-year-old male patient was brought to our emergency department with emergency medical services after an in-car traffic accident. Patient GCS was 15 and his neurological examination was intact when he arrived atemergency. He had nausea and vomited once before he arrived at the hospital. CT was taken to avoid intracranial hemorrhage and other important diagnoses. We had seen luminal lesions resembling air images in millimetric dimensions in left ambien and quadrigeminal cisterna, both lateral ventricular frontal horns and posterior corpus in his cranial CT. The patient was referred to brain surgeon and hospitalized with a diagnosis of pneumocephalus developing secondarily due to head trauma.After hospitalization, an MRI was taken. MRI was reported as anintracranial lipoma. The patient was discharged with suggestions.

Intracranial lipoma (ICL) is usually asymptomatic and benign. Sometimes the images on the cranial CT's of trauma patients can be confusing. Emergency medicine physicians should keep in mind ICL as a diagnosis in case of incompatibility with the radiological findings and clinical status of the patient.

Key words: intracranial lipoma, head trauma, pneumocephalus

OBJECTIVE

Intracranial lipomas (ICL) are seen in 0.06-0.46% of all intracranial tumors (1). The actual frequency is not known precisely because the diagnosis is mostly coincidental. ICLs are considered to be congenital malformations originating from the abnormal differentiation of mesenchymal tissues of the primitive meninx (2). Although the patients are usually asymptomatic but most often complaint is the headache. Fat, calcification and sometimes vascular structures are observed when lipomas are examined microscopically .These lesions, which are usually asymptomatic, are detected incidentally by computed tomography (CT) and magnetic resonance imaging (MRI) and are diagnosed by typical imaging findings(3). Pneumocephalus is a condition that can be encountered especially in trauma patients in emergency services .Intracranial lipoma's tomographic image may lead to interpretation as pneumocephalus in the evaluation of patients with head trauma, especially in the emergency department. We aimed to emphasize this rare lesion seen on CT after a head injury to attract the attention of emergency physicians to this issue.

CASE:

A 53-year-old male patient was brought to our emergency department with emergency medical services after an in-car traffic accident. He was conscious and vital parameters were normal. In his physical examination, there were not any abnormal physical findings. Patient GCS was 15 and his neurologic examination was intact once he arrived at emergency. He had nausea and vomited once before he arrived at hospital. CT was taken to avoid intracranial hemorrhage and alternative necessary diagnoses. On patient's cranial CT, there were luminal lesions resembling air images in millimetric dimensions in left ambien and quadrigeminal cisterna, both lateral ventricular frontal horns and posterior corpus. The images were primarily interpreted as pneumocephalus because the patient had head trauma accompanying nausea and vomiting. The patient was referred to brain surgeon as head trauma with pneumocephalus. The patient was hospitalized for further follow-up and treatment to neurosurgery department. After hospitalization, patient had not any clinical findings due to cranial trauma and pneumocephalus and an MRI and a control head CT was taken. CT and MRI were reported by radiologists as intracranial lipoma. On follow-up, he had not any physical findings and his neurologic examination was totally normal. He had discharged for further policlinic follow-up.

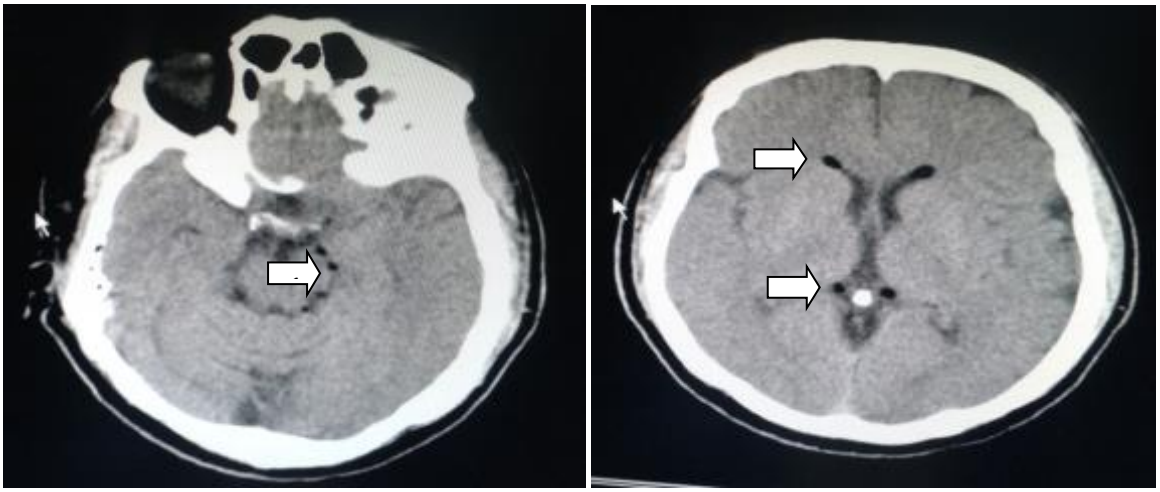

Image 1-2: Intracranial lipomas cranial CT sections showing the largest diameter is 8 mm, fat densities ranging from -26 to -40 HU in basal cisterns, left ventricle frontal horn and right lateral ventricle horn. White arrows show lipomas. The black areas shown by the arrows are lipomas.

DISCUSSION

ICL is a rare benign tumor. The average frequency is between 0.06-0.46% (1).Most of the cases settle in the interhemispheric fissure (4). Surgical removal of ICL due to adherence to surrounding tissues and surrounding neurovascular structures presents a high risk of mortality and morbidity. Incidentally detected lipomas do not require surgical treatment, but surgery should be considered in cases of uncontrolled seizures, hydrocephalus, progressive dementia and increased intracranial pressure (5).

Pneumocephalus is an important radiological finding that can be used as a diagnostic clue to assess the clinical history and accompanying symptoms, which may be indicative of very severe pathologies. In patients with head trauma, pneumocephalus is an indirect finding of a fracture out of the cranium. Accurate diagnosis is especially important in emergency patients because it can cause mortality and morbidity. On CT scan, air has a Houndsfield coefficient of -1000, that helps detection of very small quantities of intracranial air. Fat commonly can appear very dark on standard CT windows and can be misdiagnosed as pneumocephalus (6).Entering cranial CT scan to the practice of medicine is a breakthrough in the evaluation of patients with head injury. The first diagnosis of head injury patients are often placed by doctors working in emergency departments. Urgent diagnosis and treatment are crucial for lethal hemorrhagic injuries, and this period is called "golden hour"(7). Golden hour evaluations are made by emergency physicians. The evaluations are important for the prognosis of the patients. In our case, it was evaluated as pneumocephalus as the first diagnosis who came to our emergency department after head trauma. MRI evaluation like in our case can be considered for exact diagnosis. Patients can be admitted to hospital if needed until adefinitive diagnosis is made.

CONCLUSION

Brain tomography is a commonly used radiological examination in the emergency department. It is used to evaluate intracranial pathologies, especially in trauma patients. ICLs are usually asymptomatic and benign. Perhaps tomography images of the trauma patient are prone to confusion. ICL should be kept in mind by emergency medicine physicians in case of incompatibility with clinical findings of the patient with typical radiological findings. ICL, which is easily recognized by cranial CT and MRI, is most commonly located around the midline and dorsal mesencephalic area and may be associated with other congenital malformations. Surgery should be considered when progressive symptomatic events and hydrocephalus develop.

REFERENCES

1. Chen CF, Lee YC, Lui CC, Lee RJ. Posterior pericallosal lipoma extending through the interhemispheric fissure into the scalp via the anterior fontanelle. Neuroradiology. Springer; 2004;46(8):692–5.

2. Gossner J. Small Intracranial Lipomas may be a Frequent Finding on Computed Tomography of the Brain. Neuroradiol J. SAGE Publications;26(1):27–9.

3. Seidl Z, Vaneckova M, Vitak T. Intracranial lipomas: a retrospective study. Neuroradiol J. SAGE Publications; 2007;20(1):30–6.

4. Karakas E, Dogan MS, Cullu N, Kocaturk M, Kocaturk O, Karakas O, vd. Intracranial lipomas: clinical and imaging findings. Clin Ter. Italy; 2014;165(2):e134-8.

5. Marsden N, Stimpson A, Al-Baqer H, Leach P. Intradural lipoma at the foramen magnum presenting with classical Chiari symptoms: A case report. Br J Neurosurg. England; 2015;29(4):592–4.

6. Schirmer CM, Heilman CB, Bhardwaj A. Pneumocephalus: Case Illustrations and Review. Neurocrit Care. 2010;13(1):152–8.

7. Dinh MM, Bein K, Roncal S, Byrne CM, Petchell J, Brennan J. Redefining the golden hour for severe head injury in an urban setting: the effect of prehospital arrival times on patient outcomes. Injury. Elsevier; 2013;44(5):606–10.