

## Intracranial Foreign Body-Migration of Platinum Needles Subcutaneously Implanted by Acupuncture

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### 1. Abstract

The authors report a rare case of a patient with epileptic seizures manifested six months ago due to intracranial foreign bodies of acupuncture platinum needles migrated from the subcutaneous regions of the shoulder and neck. The patient was treated for bronchial asthma with implanted platinum needles by an unlicensed acupuncturist 18 years ago. She had frequently experienced that the stationary objects were moving and also developed frequent syncope since six months ago. EEG showed epileptic pattern. Plain x-ray showed many needles (4.0 mm in length and 1.0 mm in diameter) in the right frontal lobe, cavernous sinus, neck and shoulder. Three dimensional computed tomography demonstrated needles along the internal carotid artery.

### 2. Introduction

Uncommon migrating intracerebral foreign body has been reported. Among intracerebral foreign bodies, bullet caused by gunshot has been most popularly reported and migrating pellet as an embolus to the cerebral circulation from a peripheral injury has been rarely reported [1-14]. However, intracerebral migrating needle has not been reported clinically, although a needle has been reported to move in the artery and vein by blood stream and sometimes to be life threatening. We describe a rare case with intracerebral migrating platinum needles along blood stream caused by the treatment of acupuncture.

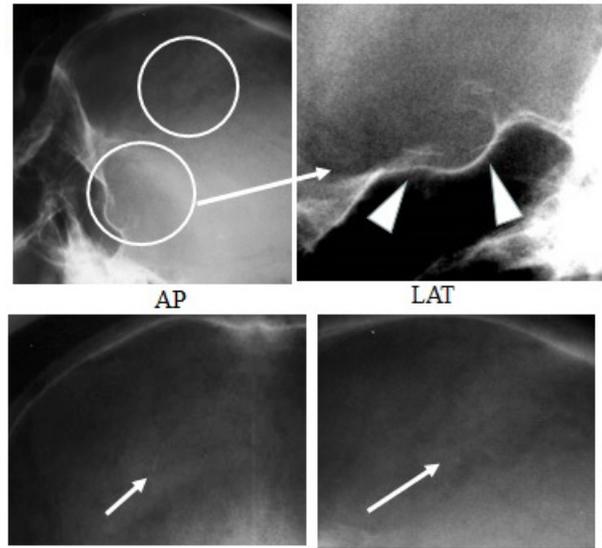
### 3. Case Report

This 59-year-old woman developed syncope and visual problems with inability of eye focus and stationary objects swaying six months ago. These symptoms were repeated frequently, and also

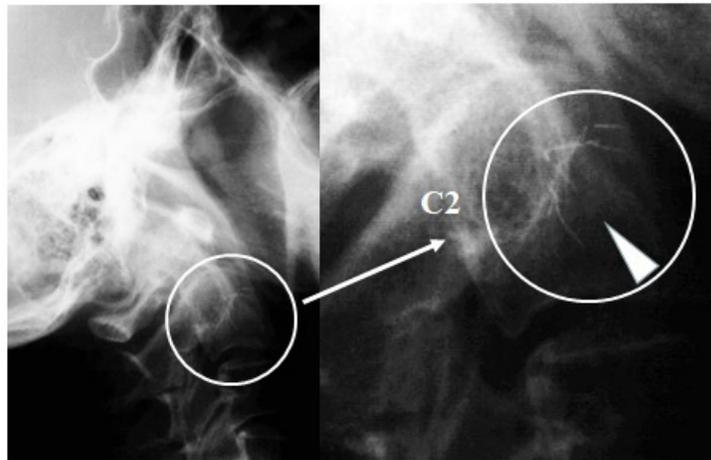
developed frequent severe headache and pain from the left neck to the left shoulder, which she had never experienced before, with nausea and vomiting. She consulted a ophthalmologist at a local hospital and was referred to our hospital [15-21]. She had a past history that she had treatment of acupuncture twice by an unlicensed acupuncturist outside the hospital without permission of a doctor during admission at a local hospital for bronchial asthma 18 years ago. Many platinum needles for acupuncture were placed subcutaneously in the shoulder and neck. Neurological examination showed no abnormal findings except for diminished strength of hand grip on the right side (right handed, right: 10 kg, left: 19 kg). Blood sedimentation rate was 7 mm at one hour and 22 mm at two hours. CRP was less than 0.3 mg/dl. The number of white cell was 4530 / $\mu$ l. Examination of cerebrospinal fluid obtained by lumbar puncture showed normal findings (cell: 9/3/mm<sup>3</sup>-all lymphocytes; sugar, 82 mg/dl; protein, 16 mg/dl; Pandy, Nonne-Apelt and Tryptophan reactions, negative). Plain skull films demonstrated two small linear shadows which were considered needles both in the right frontal region and parasellar region (Figure 1). Cervical x-ray showed several same multiple shadows in the left neck (C2-portion) (Figure 2) and chest x-ray also revealed many same shadows, which were considered subcutaneously placed platinum needles, in the right retroclavicular area (Figure 3). Plain computerized tomography demonstrated two high density spots along cortical sulci in the right frontal lobe (Figure 4) and two metallic high density lines were confirmed by CT scanning at bone window (Figure 5). Then, three dimensional computed tomography revealed the needle located in the root of the internal carotid artery (Figure 6). MRI did not demonstrate abnormal region corresponding to the regions on

CT scanning. Electroencephalogram showed marked sharp waves in the temporal, frontal and central regions. Single photon emission tomography with I-121 iodoamphetamine showed no abnor-

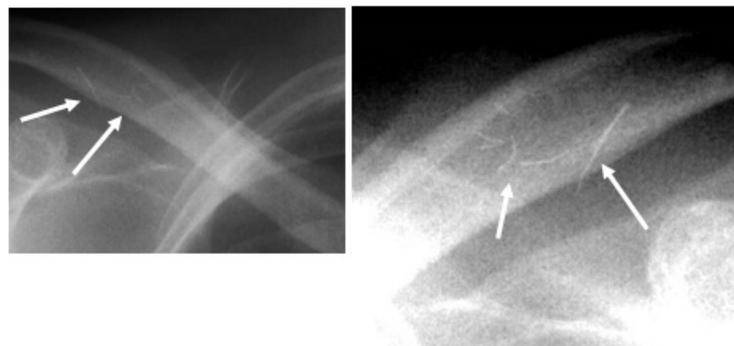
mal findings. Valproic acid (600 mg/day, p.o.) was administered under the diagnosis of epilepsy. Thereafter, she became free from visual symptoms and syncope attack, although the weakness and pain in the right upper extremity persisted.



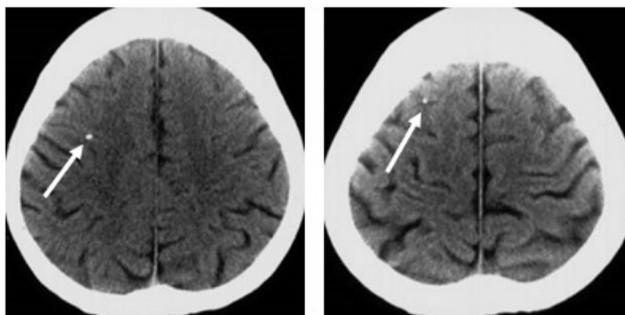
**Figure 1:** Plain skull films demonstrated two small linear shadows which was considered needles both in the right frontal region (arrow) and parasellar region (arrow head).



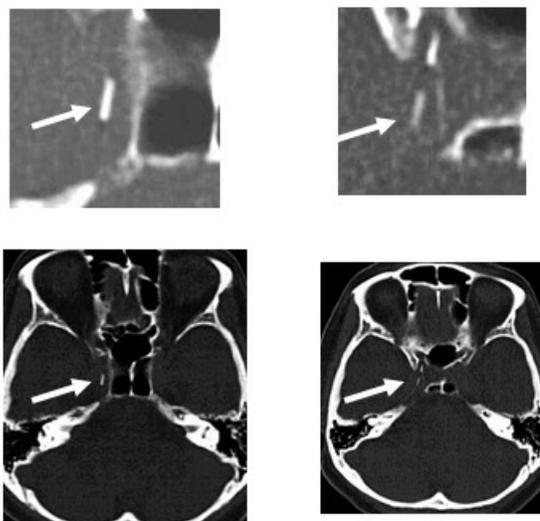
**Figure 2:** Cervical x-ray showed several same multiple shadows in the left neck (C2-portion).



**Figure 3:** chest x-ray revealed many same shadows, which considered subcutaneously implanted platinum needles, in the right retroclavicular area.



**Figure 4:** Plain computerized tomography demonstrated two high density spot along cortical sulci in the right frontal lobe.



**Figure 5:** CT scanning at bone window demonstrated two metallic high density lines.



**Figure 6:** Three dimensional computed tomography (3D-CT) revealed the needle located in the root of the internal carotid artery.

**4. Discussion**

Foreign bodies can enter the artery by three mechanisms: direct puncture of an artery or vein; delayed erosion into an artery or vein; or direct entry into the heart. In the present case, direct puncture of the carotid artery was suspected.

Spontaneous migration of an intracranial mettalic foreign body has been reported and the explanation to this phenomenon has been made as four mechanisms: objects lie free within the ventricular system; objects sink through white matter for the gravity ; objects lie within a cavity , or adjacent to expanding abscess; and the bul-

let may pass back along the path of entry. And, many reports of gun pellet penetrated carotid artery and spontaneously migrated to the intracranial vessels caused cerebral infarction. Intracranial mettalic fragments have the danger of infection and the formation of toxic breakdown products injuring the normal brain tissue. Retained intracranial foreign bodies that follow gun shot wounds of the head have been thought that they have less potential for infection than bone fragments and other debris, becuse pellet are sterilized by heat. However, in the present case, platinum needles are supposed to not have been sterilized.

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