

Incidentally Diagnosed Intracranial Sewing Needle Located in the Midline: Case Report

Erdoğan AYAN, Cezmi ÇAĞRI TÜRK, Metin ORAKDÖĞEN, Elif BALIN, Hakan SOMAY, M. Zafer BERKMAN

Haydarpaşa Numune Education and Research Hospital Neurosurgery Department

✓ Intracranial foreign bodies are quite common entities following head trauma, however sewing needles located in the midline are rare entities, and they are rarely diagnosed later in life. These cases are challenging with respect to their causative relations to seizures, their treatments and surgical indications. A 44 year old male patient presented with nonspecific headache. On his cranial computerized tomography scans, an intracranially located sewing needle was detected in the midline. In the literature these cases are generally presented with CSF leak, neurological deficits and epileptic seizures. Rusting of the needle is supposedly a triggering factor for epilepsy. The case is uncommon because of the fact that it is diagnosed incidentally and the case is managed conservatively. In the following report, the case is discussed in the light of the literature.

Key words: Infanticide, intracranial sewing needle, penetrating head injury

J Nervous Sys Surgery 2009; 2(4):196-199

İnsidental Tam Konan Orta Hat Yerleşimli İntrakranial Dikiş İğnesi: Olgu Sunumu

✓ Kafa travması sonrasında intrakranial yabancı cisimler sık görülmesine rağmen, orta hat yerleşimli dikiş iğnelere ender olarak rastlanır. Bu olgular; epileptik nöbet ile nedensel ilişkileri, tedavi stratejilerinin tespiti ve özellikle cerrahi endikasyonları bakımından ilgi çekici olabilir. Baş ağrısı nedeni ile kliniğimize başvuran 44 yaşında bir erkek hastanın bilgisayarlı tomografisinde intrakranial orta hat yerleşimli dikiş iğnesi tespit edildi. Bu olgu literatür eşliğinde tartışıldı.

Anahtar kelimeler: İnfantsit, penetran kafa travması, intrakranial dikiş iğnesi

J Nervous Sys Surgery 2009; 2(4):196-199

Penetrating head injuries are major causes of high morbidity and mortality after head trauma^(8,9). Most of these injuries result from gunshot wounds, however accidental traumas caused by agents such as wood chips, plastic materials, glassware, bones and nasogastric tubes are reported in the literature^(3-5,10). These injuries are generally diagnosed just after the incident. Although rarely seen, they can also present with CSF leaking, infections, neurological deficits or epileptic seizures depending on the localizations in late periods^(6,7). Among these

foreign bodies, intracranial sewing needle is a rare incident⁽²⁾. First report regarding intracranial sewing needles are presented in 1979. In this report 13 cases were presented, and infanticidal or accidental etiology of these cases were most strongly emphasized⁽¹⁾. These cases may present with headache and epileptic seizures or they can be diagnosed incidentally during evaluation for another condition. In the literature the reports mostly concentrated on the mechanism of the injury or for forensic aspects, pathogenesis of the seizures, indications for surgery and



Figure 1, 2. Anterior posterior cranial X-ray indicating midline vertical foreign body which is irregular in contour implying rusting of the sewing needle. Lateral cranial X-ray demonstrating the foreign body resembling to sewing needle extending from cranial bone vertically. On the proximal part of the foreign body, there is a tiny hypodensity compatible with the hole in sewing needles

social reflections of the incident ^(1,2).

The sewing needles located in the midline and its vertical orientation led the authors of previous studies to the presumption that sewing needles should be penetrated into skull before the closure of the anterior fontanelle. This would be attributed to an infanticide or simply an unintended accident. Cases of infanticide are more common in the societies in which polygamy is a usual practice, and step mother or sibling(s) or even a psychologically ill family member might be implicated for this criminal act ⁽¹⁾.

CASE REPORT

A 44 year- old male patient presented to our clinic with headache persisting for the last 3-4 months. On his neurological examinations, no abnormal findings could be detected. He denied any history of seizures. On his family history neither head trauma nor a family history of polygamy or psychologically conflicted rela-

tions could be revealed. On his cranial X-ray graphy, a vertically oriented midline hyperdense foreign body which is 7 cm long and 0.5 cm in thickness demonstrating enlargement in its distal 2/3 segment was noted. This foreign body appearance was compatible with a sewing needle. Computarized tomography scans showed that the needle was transpassing through the frontal cortex up to the third ventricle without any surrounding edema or gliosis. EEG revealed normal pattern without lateralization to the needle or its surroundings. The patient is followed without any surgical or medical treatment with antiepileptics because of the fact that patient's complaints were nonspecific and neurological examinations were normal.

DISCUSSION

Intracranial sewing needles characteristically demonstrated as vertically oriented midline lesions which have a metallic image with hole being closer to the cranial bones. Besides these,

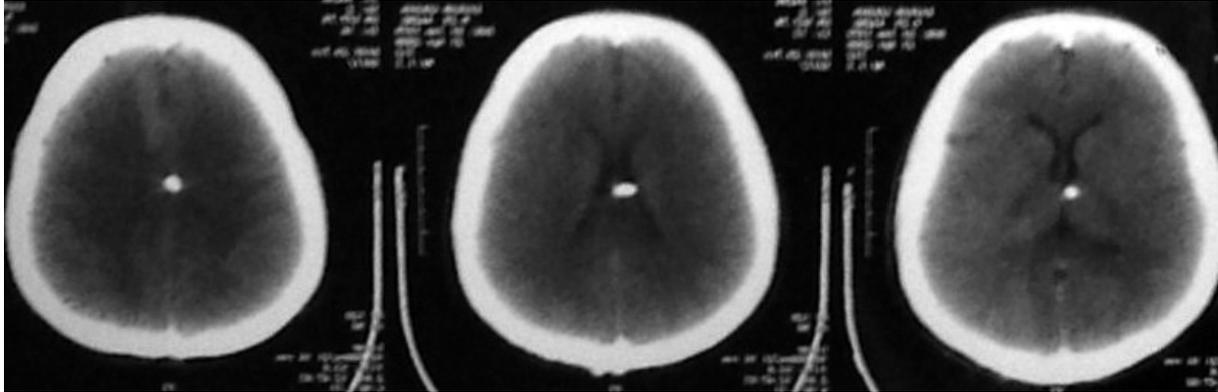


Figure 3. On computerized tomography scans showed that the needle was transpassing through the frontal cortex up to third ventricle without surrounding edema or gliosis.

low density deposits accumulated on the needle can also be detected. In the literature this deposits, shown to be rusts were reported in one case which were operated for the needle inducing an epileptogenic focus ⁽²⁾. In the following report the needle itself was also located in the midline and deposits were demonstrated in the distal 2/3 of the needle. The hole in the proximal part supported our assumption that this metallic foreign body is sewing needle.

As reported in the literature similar patients were mostly operated for epileptic seizures ^(2,6). Epileptic seizures are mostly related to focal brain injury leading to necrosis and gliosis after the initial trauma. It is claimed that these changes in the brain structure alter the spread of neurotransmitters improperly ⁽⁶⁾. Another theory for epilepsy is related to electrophysiological changes that are supposed to occur during rusting process of the needle in the surrounding tissues, trigger seizures in these patients ⁽²⁾.

Surgical intervention should be planned whenever the epileptogenic focus is determined with EEG studies. Otherwise surgery will fail to control epileptic seizures, even in same cases surgery itself will cause seizures. It is reported that rate of epileptic seizures in patients with supratentorial surgery is 17 % ⁽¹¹⁾.

In the presented cases, patient only had nonspe-

cific headache that can not be lateralized to the needle for the last 3-4 months and neurological examination was normal. There was no history of epileptic seizures, too. Headache is a common symptom that even the etiology could always be determined. Therefore, taking surgical risks and postoperative epilepsy into account, patient was monitored conservatively, instead of surgical intervention.

These cases are interesting for their management. Etiologic factors are related to epileptic seizures and astonishing infanticide purposes. Various kinds of intracranial foreign bodies are reported in the literature which are not uncommon entities. An Intracranial sewing needle particularly raise suspicions for infanticides. First of all, the needles are located in the midline and vertically oriented which lead to the idea that the needle should be inserted from anterior fontanelle before its closure. Secondly, cases in the literature reporting two needles in the midline supported that the incident was not an accident rather a criminal act performed by a step mother, brother or a psychologically ill family member ⁽¹⁾. Most of the cases are reported from Turkey, Iran and India which also supported the theory that polygamy and step brother etc is an important causative factors ⁽⁶⁾.

The needle passing through the superior sagittal sinus would cause hemorrhage or sinus throm-

bosis. The delayed cases probably survive these complications or luckily there will be no superior sagittal sinus injury. These cases may be also misdiagnosed as sudden infant death syndrome if they are not suspected and particularly looked for ⁽¹⁾.

As a conclusion, intracranial foreign bodies of these kind may not be uncommon and some of the sudden infant death syndrome would be the result of this horrible experience. Therefore, particularly in underdeveloped countries and in families with complicated relations this risk should be kept in mind. Besides, intracranial needle incidents are seemingly left untreated in most of the cases, and diagnosed incidentally or during evaluation for another diseases, as in our case. EEG may warrant surgical intervention particularly if indicates that the needle is an epileptogenic focus.

REFERENCES

1. **Abbasioun K, Ameli NO, Morshed AA.** Intracranial sewing needled: Review of 13 Case. *Journal of Neurology, Neurosurgery and Psychiatry* 1979; 42:1046-9.
2. **Balak N, Guclu G, Karaca I.** Intracranially retained sewing needle in a child: Does the rust on the needle have any implication, *Eur J Trauma Emerg Surg* 2008; 34:159-62.
3. **Bullock R, Van Delen JR.** Acute carotid-cavernous fistula with retained knife blade after transorbital stab wound. *Surg Neurol* 1985; 24:555-8.
4. **Fketcher SA, Henderson LT, Miner ME.** The successful surgical removal of intracranial nasogastric tubes. *J Trauma* 1987; 27:948-52.
5. **Greene KA, Dickman CA, Smith KA.** Selfinflicted orbital and intracranial injury with a retained foreign body, associated with psychotic depression: Case report and review. *Surg Neurol* 1993; 40:499-503.
6. **Güven G, Topuz AK, Cetinkal A.** Late epilepsy due to intracranial sewing needle case report; *Turkish Journal of Neurology* 2008; 14:5.
7. **Marquardt G, Schick U, Moller-Hartmann W.** Brain abscess decades after a penetrating shrapnel injury. *Br J Neurosurg* 2000; 14:246-8.
8. **Peek-Asa C, McArthur D, Hovda D.** Early predictors of mortality in penetrating compared with closed brain injury. *Brain Inj* 2001; 15:801-10.
9. **Pruitt BA.** Management and prognosis of penetrating brain injury. *The Journal of Trauma*. Lippincott Williams&Wilkins, Baltimore, 2001; 51(Issue 2 Supplement).
10. **Ramesh T, Mohanty S.** Migrating intracranial shotgun pellets; A case report with review of literature. *Neuroscience Today* 2002; 6:64-6.
11. **Shaw SR, Foy PM.** Epilepsy after craniotomy and the place of prophylactic anticonvulsant drugs. Discussion paper. *J R Soc Med* 1992; 84:221-3.