Intracranial epidural hematoma spontaneous resolution

There has been a profound increase in the number of patients undergoing head computed tomography after minor injuries and the identification of intracranial epidural hematomas has risen concurrently. Although emergent craniotomy and evacuation has been the conventional standard for management, some epidural hematomas can be managed nonoperatively in carefully selected patients. Because of the difficulty in clinically monitoring epidural hematoma absorption and resolution because of the attributed risks of imaging radiation exposure in pediatric patients, the exact incidence of epidural hematoma ossification is unknown. Integrating epidural hematoma calcification into management algorithms is not clearly defined in the literature [1].

Spontaneous drainage of a intracranial epidural hematoma through a skull fracture is rare.

Although several theories have been suggested regarding the spontaneous resolution of EDH, it has not yet been fully elucidated. Fifteen cases have been reported in the literature with a resolution less than 24 hours.

Of the patients, ten were pediatric (under age 18) and five were adults. All cases except one were associated with skull fractures.

The case of Aydemir et al. has the fourth fastest resolution ever reported in the English literature. They think that the most important factor in the rapid spontaneous resolution is the presence of a connection between the epidural and epicranial space, either through a fracture or cranial sutures. [2].

Aoki et al. reported that skull fracture has a positive impact on prognosis as it provides a connection between the epicranial and epidural spaces [3].

Two EDH cases with fractures including the external auditory canal have been published in the literature and rapid spontaneous resolution without an increase in intracranial pressure was reported [4] [5].

Gülşen et al. reported a 4 year-old with a case of spontaneous resolution without skull fracture. In this case, hematoma was adjacent to cranial sutures and it was thought to be related to the opening in the sutures [6].

According to the hypothesis of Malek et al. [7] , blood and serous fluid in the epicranial space passes through the fracture into the epidural space due to increased pressure after head trauma, and then they pass into the epicranial space through fracture by counter flow as epicranial pressure decreases. However, this process is completed within about 18 hours, which is insufficient to explain the 3-hour resolution in the case of Aydemir et al. [8]. Furthermore, increased intracranial pressure was thought to be the cause of the counter flow of epidural hematoma into the epicranial area [9].

However, increased intracranial pressure has been reported in only two of the cases published in the literature. According to another theory, bleeding from the diploic space during early phases of trauma spreads into the epidural and subgaleal spaces through fracture and passage into the subgaleal space from the epidural space happens due to the pulsatile effect of the brain [10].

Tataryn et al. have published a case of spontaneous resolutions without ICP increasing. This may have ultimately contributed to relatively lower pressure in the subgaleal space compared to the intracranial pressure and acted as a driving force, decompressing the hemorrhage into the subgaleal space [11].

Pillai et al. report two cases of spontaneous evacuation of acute EDH, in children, with two differing types of skull fractures, one being an elevated fracture. The context, in which the terminologies of “spontaneous evacuation” and “spontaneous resolution” to be used, is clarified [12].

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