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Postoperative Contralateral Spontaneous Epidural Hematoma

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Postoperative contralateral extradural hematoma (EDH) is a rare condition.[1] The dura lies closely adherent to the calvarium which prevents collection of any hematoma. However, due to trauma or nontraumatic causes, there can be acute collection of blood in the space resulting in EDH. The most common cause of EDH is trauma of various etiologies. Ten percent of all traumatic head injuries result in EDH. Traumatic injuries consist of road traffic accidents and violent collisions of the head, which induce bleeding due to the tearing of meningeal vessels like arteries, veins, or sinuses. Nontraumatic spontaneous EDH causes are rare. Spontaneous EDH patients are categorized into primary (cryptogenic) and secondary EDH. Nontraumatic causes of EDH are coagulation abnormalities, blood dyscrasias like Sickle cell disease and hemophilia, vascular malformations, dural arteriovenous fistulae, infective causes like meningitis, etc.[2]

Sarkari et al published an article "Delayed opposite frontal epidural hematoma due to bleeding from superior sagittal sinus without any cranial fracture; A case report" in the *Indian Journal of Neurotrauma* in 2012 about a 24-year-old patient who presented with an EDH due to trauma and was operated. He developed a spontaneous EDH on the opposite side following the first surgery after 3 hours.[3]

Spontaneous EDH intraoperatively or in the postop period is a fatal complication that may be missed many times. Although rare, multiple case reports have been published from time to time regarding the same (►**Table 1**). Few were detected early and managed surgically whereas the rest succumbed due to delayed diagnosis. Spontaneous EDH can result during surgery or even in the postoperative period. In spontaneous intraoperative, the preoperative computed tomography (CT) or magnetic resonance imaging suggests a normal scan on the contralateral side. Spontaneous hematomas develop during the surgical period, which requires a keen clinical acumen to suspect such a possibility. Tense dura intraoperatively is a sign of suspect bleeds on the contralateral side (►**Fig. 1**).[4] In suspected cases, an early postoperative CT scan is required to exclude EDH. Postoperative spontaneous epidural hematoma on the contralateral side of the brain develops due to loss of the tamponade effect on the contralateral side. Preoperative noncontrast CT brain may not reveal any bleeding; however, there may be a fracture of calvarial bone present on the opposite side, which may be seen only in 75% of the patients. There may be underlying torn vessels like artery, venous, or dural sinuses, which lie compressed due to the tamponade effect. As soon as the ipsilateral EDH is evacuated, the tamponade effect on the opposite side is over, which leads to the gradual bleeding and formation of a spontaneous EDH in the postop period.[5] Early imaging (within 1–2 hours) may miss the pathology on the contralateral side. Risk factors like the rapid evacuation of EDH on the ipsilateral side, use of anticoagulants, etc. can lead to spontaneous EDH. Tense dura intraoperatively, with massive brain bulge on durotomy due to massive brain shift, bradycardia, irregular breathing pattern, and irregular pupils with development of dilatation of pupil on the contralateral side

Table 1 Causes of postoperative contralateral hematoma

Serial	Causes
1	Injury to superior sagittal sinus
2	Contralateral Skull Fracture
3	Bleeding disorder
4	Use of anticoagulant for other systemic causes

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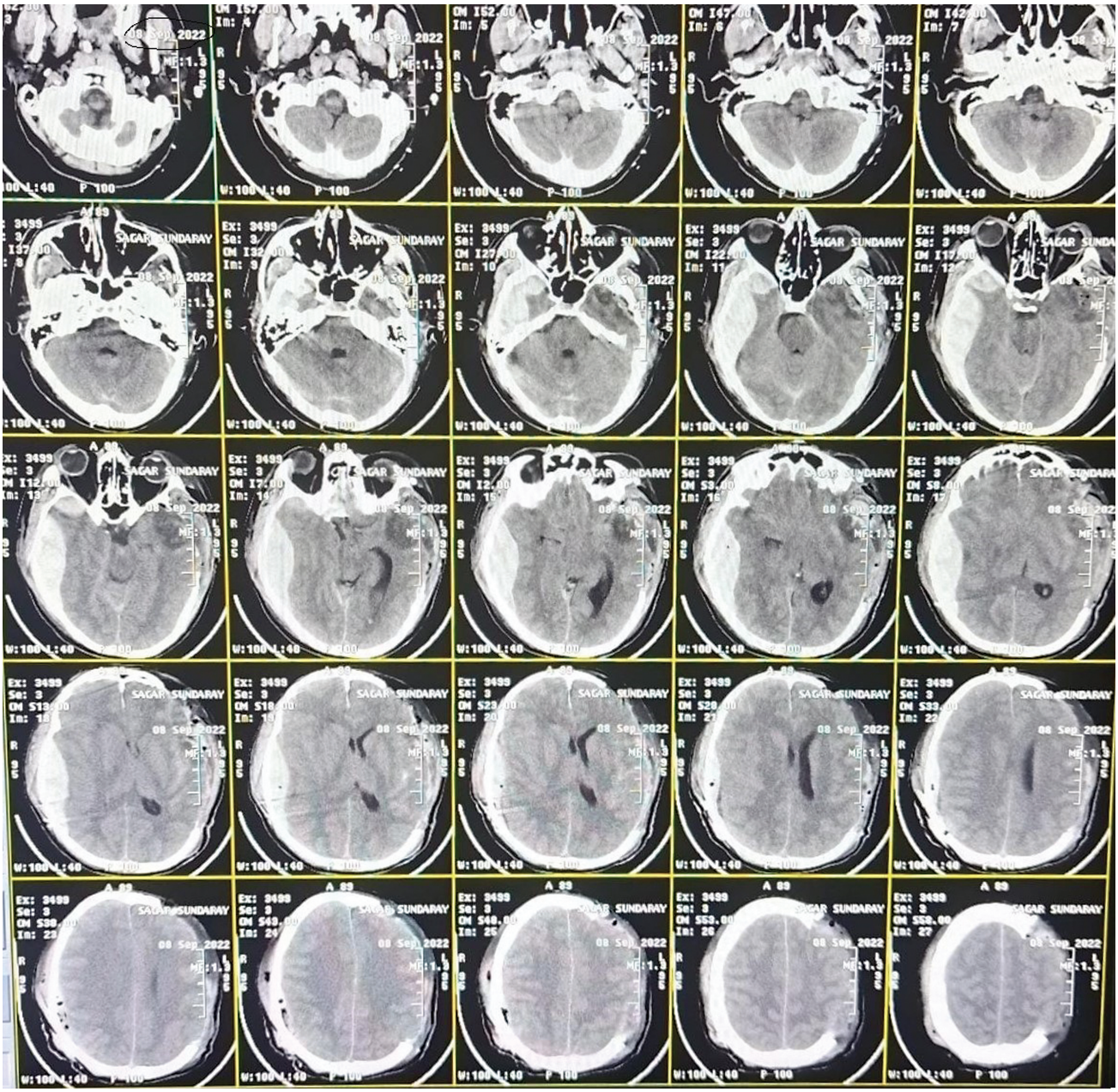

Fig. 1 Spontaneous extradural hematoma (EDH) in a postoperative case on the contralateral side.

can lead to suspicion. Management is surgery in the form of craniotomy and EDH evacuation.[6]

Early detection and management can save the patient from complications and mortality. Sharma et al reported a case in 2015 where a 28-year-old patient developed spontaneous EDH intraoperatively, which was detected and managed early.[7] Rarely EDH occur due to tear of the sagittal sinus and Mohindra et al have recommended routine postoperative CT immediately after surgery for a traumatic head injury to detect contralateral abnormality which will help in timely intervention.[8]

Spontaneous hematoma cannot be prevented; however, we can take some precautionary measures to avoid the development of contralateral hematomas:

Serial no.	Precautionary measures
1	Avoid giving anticoagulants
2	Avoid osmotic like mannitol
3	Avoid head raising if dura is too lax
4	PCO2 to maintain the upper limit
5	Valsalva

Conflict of Interest
None declared.

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