

Dominant occipital sinus variants have an incidence of 5.1% in adults.

Pre-operative planning for posterior fossa surgery should involve the study of dural venous sinus anatomy to prevent inadvertent venous sinus injury and hemorrhagic complications.

BACKGROUND

Dominant occipital sinus (OS) variants can limit the operative corridor to posterior fossa lesions as they cannot be sacrificed.

Inadvertent injury to a dominant OS (Figure 1) can lead to fatal hemorrhage.

We report the incidence and surgical strategies to circumvent dominant occipital sinus variants while approaching posterior skull base lesions.

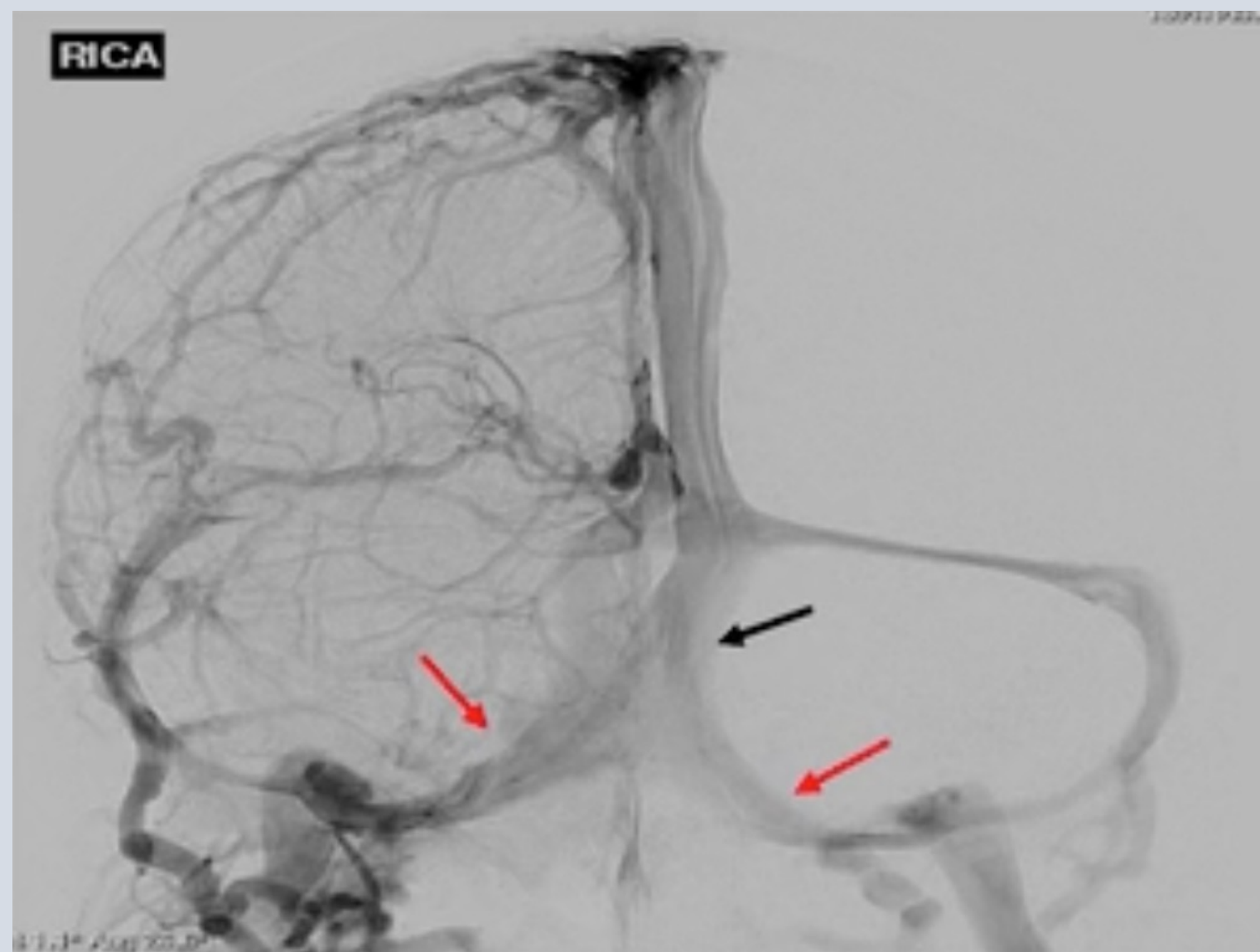


Figure 1: Dominant occipital sinus (black arrow), Circular sinus (red arrow)

METHODS

We studied posterior fossa dural venous anatomy in 430 consecutive adult patients by analyzing cerebral angiograms and 3D magnetic resonance venograms. Patients with venous sinus thrombosis were excluded.



Figure 2: Dominant OS variants

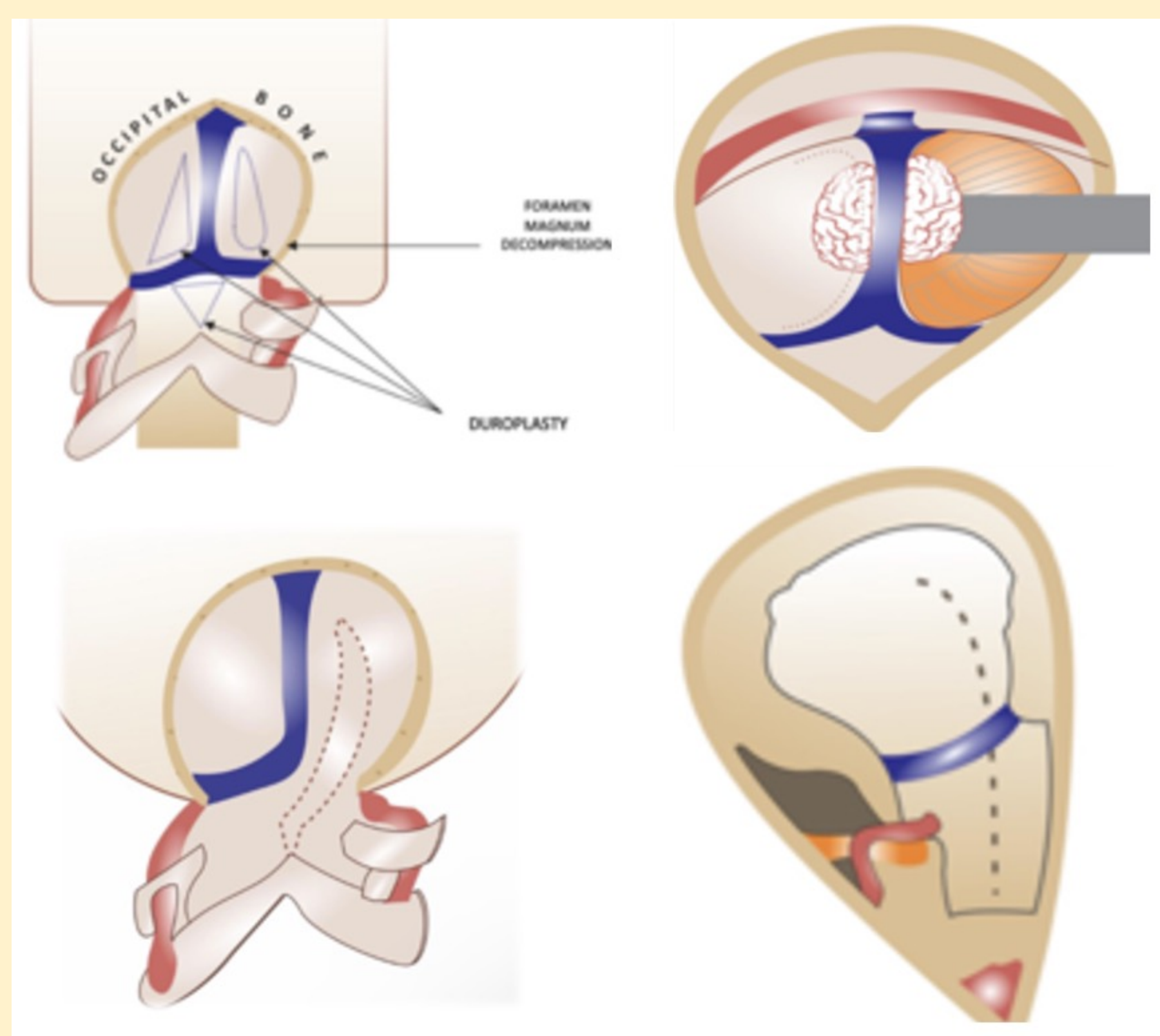


Figure 3: Modified dural incisions

RESULTS

22 cases of dominant occipital sinus variants (**incidence = 5.1%**) were identified, of which the majority (77%, 17/22) were oblique dominant OS, deviating to either side to join the jugular bulb directly (Figure 2).

Most (76%, 13/17) of the oblique dominant OS deviated to the right side.

A midline dominant occipital sinus with a co-dominant marginal sinus at the foramen magnum was seen in 5 cases (23%, 5/22).

Two cases of fenestrated dominant OS were identified.

We describe modified dural incisions to circumvent dominant OS variants during posterior skull base surgery (Figure 3)

SUMMARY

Dominant occipital sinus variants have an incidence of 5.1% in adults.

Preoperative imaging and the use of modified dural incisions during posterior fossa surgery are essential to preserve the patency of these sinuses, preventing potentially fatal hemorrhage and other complications.