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LETTER TO THE EDITOR

Pediatric otogenic lateral sinus thrombosis: focus on the prognostic role of contralateral venous drainage

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Dear Editors,

We read with interest the recent article by Scorpecci et al. [1], who investigated potential clinical predictors of outcome in pediatric otogenic lateral sinus thrombosis (OLST). In particular, we appreciated their synthetic but rather complete OLST management flowchart. On the other hand, there are some controversial points which are worth to be further underlined and one aspect which might be focused better: the prognostic role of the contralateral venous drainage as the main factor affecting prognosis. To give a wider comprehension of an impending clinical condition which is far from infrequent in tertiary referral hospitals, we can state that:

1. when an intracranial complication is suspected, contrast-enhanced brain MRI is the rule. The use of contrast-enhanced CT, as suggested in the paper, has the risk to be inadequate. Bone high-resolution CT scan is mandatory in addition to MRI, because it helps to rule out if a mastoidectomy is indicated for the patient while treating the sinus complication. Despite that the authors adhere to "the traditional assumption that OLST is per se an indication to surgery", we think that surgical approach to the mastoid is advocated when erosion of the bony plate on the sigmoid sinus is confirmed and a coalescent mastoiditis is found. There is no indication to open the sinus and remove the thrombus, unless the internal jugular vein is ligated but there is no evidence that this manoeuvre, characterised by an intrinsic embolic risk, is efficacious [2]. Considering our experience, we suggest to not opening the sinus but limiting the procedure, when required, to a mastoidectomy with the removal of the inflammatory tissue around the walls. It is not uncommon to intraoperatively find a completely disrupted sinus, where granulation tissue has replaced the lumen and clear walls are not evident. In these cases, canalization will never occur and the antithrombotic therapy should be instituted only to prevent progression of the disease;
2. the reason why thrombosis is asymptomatic is unclear but the occurrence of neurological signs in association with the otologic features is cause for serious concern. This happens—we may say *only*—when the contralateral and compensatory drainage is significantly compromised. The knowledge of the venous drainage of the endocranium and skull base may, in our opinion, give some explanations which are worth to be underlined. The cerebral sinuses invert their venous flow when an acute obstruction occurs in the sigmoid-jugular system [3] and the compensatory drainage immediately guarantees the function of the whole system (Fig. 1). Asymptomatic thrombosis of the sinus is more frequent than can be expected, also because radiological imaging is obtained when the clinical conditions raise a significant index of suspicion. There are cases of silent thrombosis where no signs appear and no therapy is administered because the condition remains undetected. When clinical conditions become evident, this may be related to the absence or poor function of the contralateral drainage (a hypoplastic sigmoid-transverse sinus for example, or a poor peri-vertebral plexus). Recanalization of the thrombotic sinus is of crucial importance—influencing the choice of the dosage and duration of the antithrombotic therapy—only in those cases where the contralateral drainage is inadequate;

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Fig. 1 A Fourteen-year-old patient with acute otitis and mastoiditis without any neurological signs. Contrast-enhanced MRI with venous phase performed to exclude intracranial complications: thrombosis at the right sigmoid sinus. The patency and good functioning of the contralateral sinus as well as the ipsilateral hypertrophic veins of the compensatory peribulbar plexus have been shown

3. when a sigmoid sinus thrombosis is suspected, contrast-enhanced MRI and angio-MRI with a venous phase of contrast-enhancement are mandatory to assess the compensatory venous drainage, which is definitely the most important prognostic factor of this complication;
4. the use of anticoagulant therapy is still controversial, as reported by the paper. Some authors tried to fix clear indications and suggested the use of antithrombotic therapy *only* in case of: (a) evidence of thrombus progression; (b) involvement of multiple sites in addition to the sigmoid-transverse complex, such as jugular bulb, jugular vein, cavernous sinus, para-sagittal aspect of the transverse sinus; (c) persisting fever; (d) worsening of the neurological signs/symptoms; (e) predisposition to thrombo-embolic events as from hematologic assessment [4]; and, we can add, (f) absence or poor compensation of the contralateral sinus.

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Compliance with ethical standards

Conflicts of interest Both authors declare that they have no conflict of interest.

Ethical approval Not applicable.

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