INTRACRANIAL COMPLICATIONS OF ACUTE SINUSITIS AND MASTOIDITIS

A 14-YEAR REVIEW OF 25 CASES

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1. What is known on this topic

- ✓ Intracranial complications of sinusitis and mastoiditis, including suppurative intracranial infection and venous sinus thrombosis, are rare and carry the potential for serious consequences
- ✓ Early recognition of intracranial extension can minimize the morbidity and the potencial for a fatal outcome from these serious complications

2. Objectives

Review our experience with intracranial complications of sinusitis and mastoiditis,, focusing on clinical presentation, microbiologic data, treatment and outcome.

3. Methods

Retrospective study of children admitted to a pediatric tertiary care academic center in Lisbon - Portugal, with intracranial complications of sinusitis and mastoiditis during 14 years (from February 2004 to January 2018). Records were reviewed for demographic data, clinical features, intracranial complication, microbiologic data, antimicrobial therapy, surgery and outcome.

4. Results

25 patients admitted with a diagnosis of intracranial complication of sinusitis and/or mastoiditis.

Table 1. Demographic and clinical characteristics of patients

	Sinusitis (n=15)	Mastoiditis (n=7)	Sinusitis + Mastoiditis (n=3)
Sex (n; M/F)	9/6	1/6	3/0
Age in years (median [range])	12 [4-7]	5 [1-6]	1 [1-1,5]
Complication (n)	Cerebral empyema (12) Cerebritis (6) Meningitis (6) Intracerebral abscess (2) Osteomyelitis (2) Venous sinus thrombosis (2)	Venous sinus thrombosis (6) Cerebral empyema (3) Meningitis (1)	Cerebral empyema (2) Venous sinus thrombosis (2) Osteomyelitis (1)
Culture results	<u>Gram-positive aerobes</u> (7) <i>S. pyogenes</i> (3); <i>S. constellatus</i> (2); <i>S. intermedius</i> (1); <i>S. anginosus</i> (1) <u>Gram-negative aerobes</u> (1) <i>Haemophilus influenzae</i> (1) <u>Anaerobes</u> (4) <i>Peptostreptococcus micros</i> (2); <i>Fusobacterium nucleatum</i> (1); <i>Gemella morbillorum</i> (1)	<i>S. pyogenes</i> (1)	<i>S. pyogenes</i> (1)
Physical findings	Fever (15) Headache (13) Vomiting (10) Meningismus (8) Hemiparesis (6) Seizure (6)	Fever (7) Meningismus (5) Vomiting (5) Headache (4) Cranial nerve palsies (1)	Fever (3) Meningismus (1)
Underlyng disorder (n)	Trauma (2)	-	-

Table 2. Medical and surgical treatment

	Sinusitis (n=15)	Mastoiditis (n=7)	Sinusitis + Mastoiditis (n=3)
Total hospital days (median [range])	33 [11-49]	22 [5-40]	33 [25-38]
Duration of antibiotics (median [range])	36 [12-49]	24 [12-39]	27 [27-44]
Surgery (n)	14 (drainage of intracranial purulence and infected sinuses at the same time - 5)	6	3

Table 3. Outcome

	Sinusitis (n=15)	Mastoiditis (n=7)	Sinusitis + Mastoiditis (n=3)
Sequelae at discharge (n)	2 (ocular palsy, fine motricity disorder)	1 (diplopia)	0
Sequelae after 6-months follow-up (n)	1 (ocular palsy)	0	0
Readmission (n)	0		
Mortality (n)	0		

5. Conclusions

- ✓ The most common symptoms in patients presenting with intracranial complication were **fever** and **headache**
- ✓ Typical symptoms of sinusitis were lacking
- ✓ More suppurative complications in sinusitis and thrombosis in otomastoiditis
- ✓ ***S. pyogenes*** was the most common pathogen, isolated in **5** patients
- ✓ **Anaerobic** organisms were recovered from **4** patients
- ✓ Infections were **polymicrobial** in **2** patients
- ✓ All patients received medical treatment and 23/25 underwent some surgical procedure.
- ✓ The combined medical and surgical treatment may have contributed to the favorable outcomes we observed
- ✓ Children with confirmed or suspicious intracranial complications should be managed in centers where timely surgical treatment is available

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