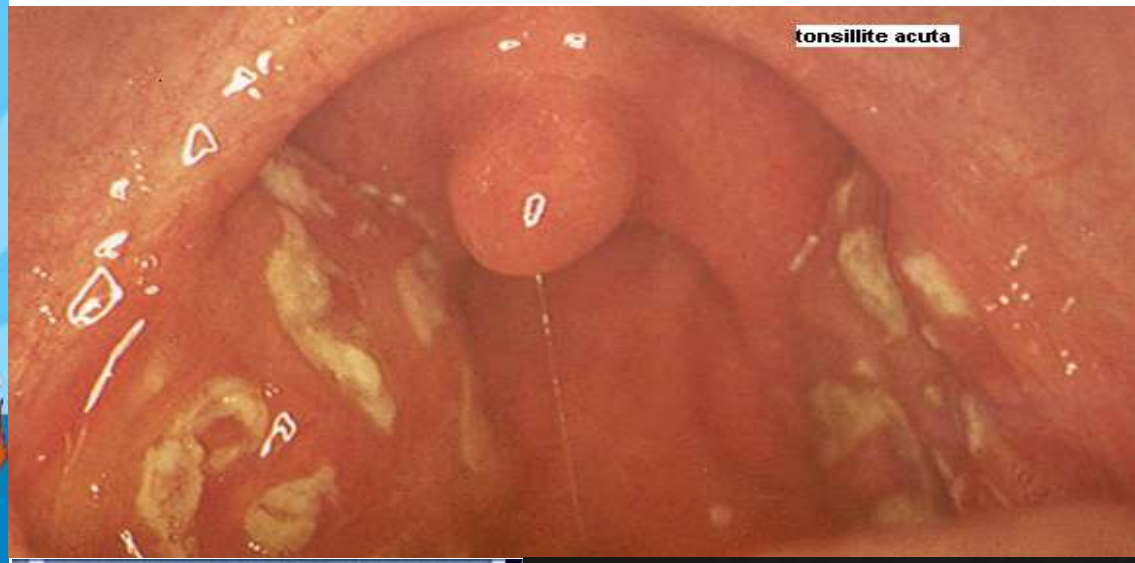
Pediatria Mediterranea

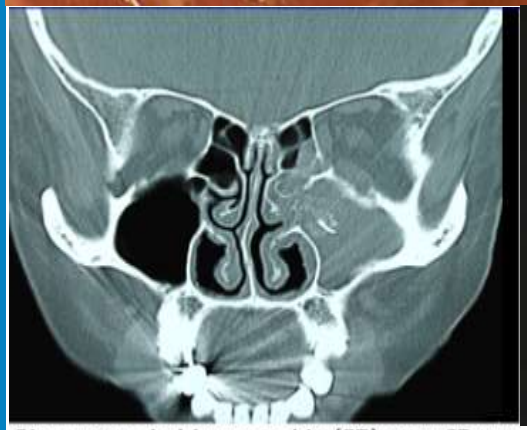
Si fa presto a dire... BAMBINO

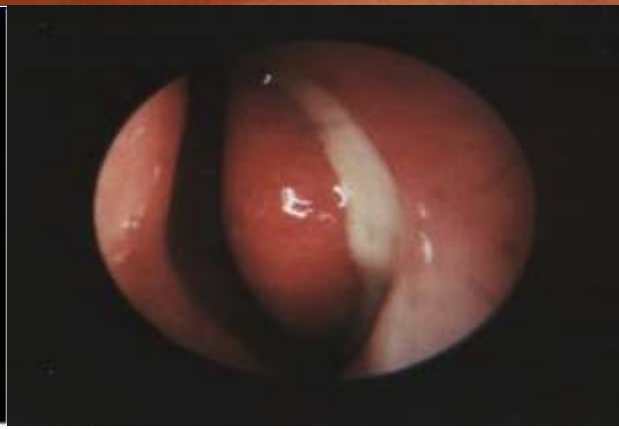
Ischia (NA) 19-22 Maggio 2016
Hotel Continental - Via Michele Mazzella 70

FIMP
Federazione Italiana Medici Pediatri

Presidente del Congresso: **Antonio D'Avino**







Sinus computed tomographic (CT) scan CT scan showing opacification and mucosal thickening of the left maxillary and ethmoid sinuses.

Si fa presto a dire... è mal di gola!
Modera **Luigi Morcaldi**

Rinosinusiti e faringotonsilliti: facciamo luce!
Introduce **Raffaele Limauro** - L'Esperto **Luigi Terracciano**

Le domande per l'esperto

- E' possibile che sia cambiata la percentuale di infezioni da SBEGA rispetto alla totalità delle tonsilliti?
- Ha ancora senso un esame culturale con un test rapido negativo?
- Prevenzione: l'uso di "killer" specifici per lo SBEGA non chimici (Str. Salivarius)
- Linee guida: italiane vs Emila Romagna, 10 vs 6 giorni: la compliance migliora l'efficacia?
- Abbiamo anche gli adolescenti: attenti al fusobacteriun necrophorum?
- 13% di recidive: quanti portatori e quante le recidive reali?
- Resistenza ai macrolidi: la situazione in Italia?

E’ possibile che sia cambiata la percentuale di infezioni da SBEGA rispetto alla totalità delle tonsilliti?

- It is estimated that 5-15% of school-age children in developed countries will develop a symptomatic case of S. pyogenes pharyngitis each year, whereas the incidence of S. pyogenes pharyngitis in less developed countries may be five to ten times that number.
- 43% of families with an index case of S. pyogenes pharyngitis have a secondary case.
- Incidence increases with age

Carapetis J. R. Steer A. C. Mulholland E. K. Weber M. The global burden of group A streptococcal infections. The Lancet Infectious Diseases 2005;5(11):685–694.

Ha ancora senso un esame culturale con un test rapido negativo?

È indicato richiedere l'esame colturale in caso di test rapido negativo?

Raccomandazione 19. In età pediatrica non è raccomandato eseguire l'esame colturale in caso di test rapido negativo (II-E).

Linee guida Italiane

In conclusione, in queste linee guida sono a supporto alla indicazione a non eseguire di routine un test colturale in caso di test rapido negativo i seguenti fattori :

- soddisfacente sensibilita e specificita dei test rapidi attualmente in uso
- necessita di prelevare due tamponi , qualora si debba avere conferma con l'esame colturale
- necessita di inviare ad un laboratorio di microbiologia il tampone per l'esame colturale
- costo di un esame colturale
- tempi per ottenere una risposta (24-48 ore)

Gram - Anaerobio

Fusobacterium necrophorum tonsillitis: an important cause of tonsillitis in adolescents and young adults

A. Jensen[1], T. M. Hansen[2], S. Bank[3], L. H. Kristensen[3] and J. Prag[2]

1) *Department of Biomedicine, Aarhus University, Aarhus, Denmark*, 2) *Department of Clinical Microbiology and* 3) *Medical Department, Viborg Regional Hospital, Viborg, Denmark*

TABLE 1. β-Haemolytic streptococci and *Fusobacterium necrophorum* found in aerobic and anaerobic cultures of throat swabs from subjects with tonsillitis and in the control group, 10 to 40 years of age

	Tonsillitis					
Clinical diagnosis	Total (n = 212)	Acute (n = 179)	Recurrent (n = 24)	Chronic (n = 9)	Peritonsillar abscess (n = 25)	No tonsillitis (n = 176)
Demography						
Age (years), median	19	19	19	17	23	22
Sex, M/F	66/146	59/120	6/18	1/8	6/19	80/96
Microbiologic findings, n (%)						
F. necrophorum	59 (27)***	43 (23)***	10 (46)***	4 (80)**	8 (32)**	10 (6)
F. necrophorum as only pathogen	26 (11)***	17 (9)*	5 (23)***	4 (44)**	5 (20)**	5 (3)
Group A streptococci	17 (8)**	7 (4)**	3 (14)**	0	3 (12)**	0
Group B streptococci	5 (2)	5 (3)	0	0	0	2 (1)
Group C streptococci	54 (25)***	42 (27)**	7 (32)*	1 (20)	3 (12)	22 (12)
F. necrophorum + group C streptococci	26 (12)***	20 (12)**	4 (18)*	2 (22)	1 (4)	6 (3)
Group F streptococci	3 (1)	3 (2)	0	0	1 (4)	1 (1)
Group G streptococci	13 (6)	13 (7)	0	0	2 (8)	5 (3)

*p <0.05; **p <0.01; ***p <0.001 compared to no tonsillitis.

RESEARCH ARTICLE Open Access

Tonsillar colonisation of *Fusobacterium necrophorum* in patients subjected to tonsillectomy

Helena Björk[1], Lena Bieber[2], Katarina Hedin[3,4] and Martin Sundqvist[2,5*]

Background: *Fusobacterium necrophorum* is a well-known cause of Lemirre's disease and accumulating evidence support its pathogenic role in peritonsillar abscess while its role in recurrent and chronic tonsillitis is uncertain. The objective of this study was to assess the prevalence of oropharyngeal colonisation with *F. necrophorum* and Beta-haemolytic streptococci in a cohort of patients scheduled for tonsillectomy due to recurrent or persistent throat pain, and to evaluate the dynamics of colonisation with repeated sampling during a follow-up time of 6 to 8 months.

Table 2 Results of throat cultures per main diagnosis at different sampling times

	Recurrent tonsillitis (RT) ($n = 20$)	Peritonsillar abscess (PTA) ($n = 8$)	Chronic tonsillitis (CT) ($n = 28$)	Total ($n = 56$)[a]
Indusion ($n = 56$[a])	5/1/14	3/0/5	8/2/18	16/3/38
Surgery ($n = 47$)	6/0/10	2/1/4	6/3/17[b]	14/4/31[b]
Follow-up ($n = 43$)	2/1/10	1/1/5	4/0/19	7/2/34

(*F.necrophorum* /beta-haemolytic streptococci/negative)

Conclusion: *Fusobacterium necrophorum* was frequently found in throat cultures in this cohort of patients with recurrent or chronic throat pain leading to tonsillectomy. Colonisation was equally frequent in the asymptomatic cohort post-tonsillectomy, indicating that *F. necrophorum* is not alone causative of the symptoms. In an individual perspective, colonisation with *F. necrophorum* was transient over time.

DOI: 10.7860/JCDR/2015/11917.6060

Case Report

Radiology Section

Grave Complication of Pharyngitis:

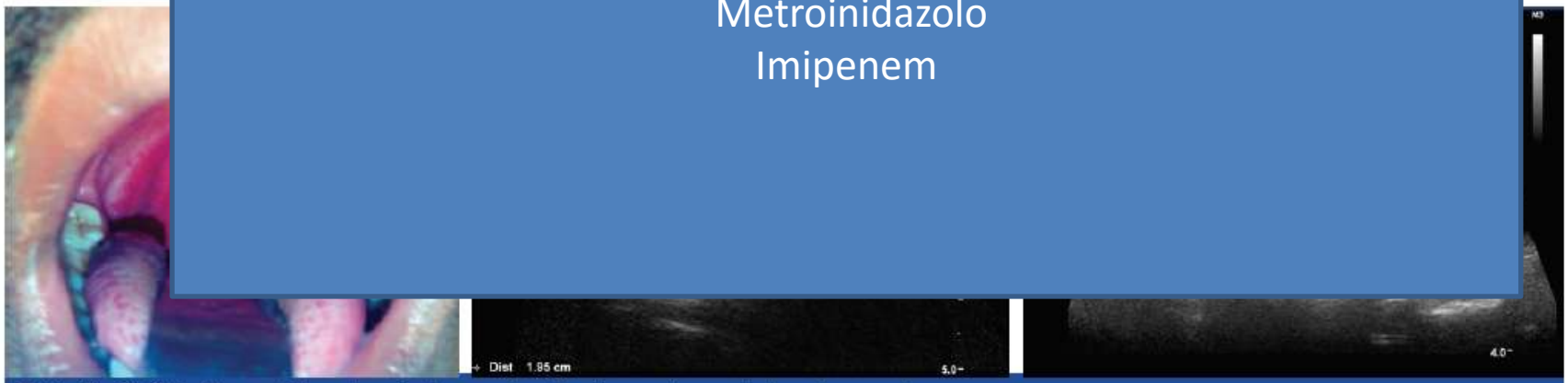
SUTHAR POK
KIMMYBEN F

Lemierre seen in the settir (51%), followed predomir ghly vulnerabl

Terapia

Fusobacterium spp. has 100% sensitivity to metronidazole, ticarcillin-clavulanate, cefoxitin, and imipenem. It is also 100% sensitive to the amoxicillin .

Amoxicillina/clavulanico ad alte dosi
Metroinidazolo
Imipenem



[Table/Fig-1]: Cinical image of the oral cavity shows red, oedematous and congested oropharyngeal mucosa
[Table/Fig-2]: High frequency ultrasonographic image with probe placed transversely at on right side at the level of the lower border of the thyroid cartilage shows dilated right Internal Jugular Vein with hypoechoic thrombosis within
[Table/Fig-3]: High frequency ultrasonographic image with probe placed longitudinally shows dilated right IJV with hypoechoic thrombosis within

Linee guida: italiane vs Emila Romagna, 10 vs 6 giorni: la compliance migliora l'efficacia?

- Dopo una discussione in plenaria che ha preso in considerazione le prove di efficacia relative al trattamento e i dati di prevalenza locali e nazionali della malattia reumatica, si è proceduto con la votazione: i partecipanti potevano esprimere per ogni esito un voto compreso fra 1 e 9 (esito non rilevante: voto da 1 a 3; esito rilevante: voto da 4 a 6; esito cruciale: voto da 7 a 9). I quattordici votanti (tre assenti) hanno concordato che:
- la guarigione clinica è l'esito cruciale della terapia (votazione 8,6);
- l'eradicazione batterica è un esito rilevante (votazione 4,4);
- la prevenzione del reumatismo articolare acuto è un esito non rilevante (votazione 2,6).

- Si è quindi proseguito per la stesura delle raccomandazioni relative al trattamento, avendo come obiettivo prioritario la guarigione clinica, coerentemente con quanto votato dal panel.

RACCOMANDAZIONE FORTE	Per la terapia della faringotonsillite streptococcica si raccomanda di somministrare **amoxicillina** al dosaggio di **50 mg/Kg/die** suddivisa **in due dosi al giorno** (ogni 12 ore) **per 6 giorni**.

- La situazione epidemiologica della malattia reumatica nel contesto della Regione Emilia-Romagna, unitamente alla virtuale assenza di prove sull'efficacia del trattamento prolungato nel prevenire la complicanza non suppurativa dell'infezione da piogene, ha indotto a prediligere la guarigione clinica come esito principale su cui valutare l'efficacia della terapia, similmente a quanto fatto dalle agenzie inglese e scozzese (NICE, 2008; SIGN, 2010).
- Inoltre a sostegno della terapia breve vi è l'evidenza di una migliore adesione dei pazienti a terapie antibiotiche di durata inferiore ai 10 giorni (Cals et al., 2008; Llor et al., 2009, 2013).

RACCOMANDAZIONE N° 24

La terapia di scelta per la faringotonsillite streptococcica è rappresentata dalla penicillina V o, in mancanza di questa, dall'amoxicillina somministrata a 50 mg/kg/die in 2-3 dosi giornaliere per via orale per 10 giorni (I-A).

Linee Guida Italiane per la gestione della faringotonsillite in età pediatrica: sintesi e commento

M. de Martino[1], N. Mansi[2], N. Principi[3], A. Serra[4], A. Camaioni[5], E. Chiappini[1], S. Esposito[3], G. Felisati[6], M. Landi[1], P. Marchisio[3]

Portatori, recidive o fallimenti?

- La quota di portatori cronici in età pediatrica è stata variamente stimata: attorno al **10%** in singoli studi condotti in Nepal, Portogallo, Etiopia e Cina(2010 e 2011), fra il **10 e il 25%** nella linea guida statunitense (ICSI, 2013) e fino al **40%** in quella scozzese (SIGN, 2010). Una metanalisi ha identificato 18 studi sulla prevalenza di portatore cronico di piogene, che è risultata pari a **12%** (IC95% 9-14) in bambini di tutte le età, nei bambini con meno di 5 anni di età risulta più bassa, attorno a 4% (IC 95% 1-7)

Portatori, recidive o fallimenti?

RACCOMANDAZIONE N° 32

In considerazione del fatto che lo stato di portatore di SBEA non è associato ad un incrementato rischio di complicanze suppurative o non suppurative e che il rischio di trasmettere SBEGA ai contatti è minimo o nullo, il bambino portatore di SBEGA non deve essere ricercato e non deve essere trattato in alcun caso. (VI-D).

RACCOMANDAZIONE FORTE	Si raccomanda di **sospettare lo stato di portatore cronico** di piogene quando: • non si osservi una pronta risposta (dopo 24-48 ore) alla terapia antibiotica pur in presenza di clinica suggestiva e RAD positivo • si manifestino frequenti episodi di faringotonsillite con RAD positivo (tre o più episodi in 12 mesi) • si ottenga un RAD positivo in fase di benessere del bambino

APPLIED AND ENVIRONMENTAL MICROBIOLOGY, Feb. 2007, p. 1107–1113 Vol. 73, No. 4
0099-2240/07/$08.00+0 doi:10.1128/AEM.02265-06

Salivaricin A2 and the Novel Lantibiotic Salivaricin B Are Encoded at Adjacent Loci on a 190-Kilobase Transmissible Megaplasmid in the Oral Probiotic Strain *Streptococcus salivarius* K12[▽]

Otto Hyink,[1] Philip A. Wescombe,[2] Mathew Upton,[1,3] Nancy Ragland,[1] Jeremy P. Burton,[1,2] and John R. Tagg[1]*

Department of Microbiology and Immunology, University of Otago, P.O. Box 56, Dunedin, New Zealand[1]; BLIS Technologies Ltd., Centre for Innovation, P.O. Box 56, Dunedin, New Zealand[2]; and Manchester Medical Microbiology Partnership, University of Manchester School of Medicine, Manchester M13 9WL, United Kingdom[3]

Received 26 September 2006/Accepted 17 December 2006

The commercial probiotic *Streptococcus salivarius* strain K12 is the prototype of those *S. salivarius* strains that are the most strongly inhibitory in a standardized test of streptococcal bacteriocin production and has been shown to produce the 2,368-Da salivaricin A2 (SalA2) and the 2,740-Da salivaricin B (SboB) lantibiotics. The previously uncharacterized SboB belongs to the type AII class of lantibiotic bacteriocins and is encoded by an eight-gene cluster. The genetic loci encoding SalA2 and SboB in strain K12 have been fully characterized and are localized to nearly adjacent sites on pSsal-K12, a 190-kb megaplasmid. Of 61 strongly inhibitory strains of *S. salivarius*, 19 (31%) were positive for the *sboB* structural gene. All but one (strain NR) of these 19 strains were also positive for *salA2*, and in each of these cases of double positivity, the two loci were separated by fewer than 10 kb. This is the first report of a single streptococcus strain producing two distinct lantibiotics.

International Journal of General Medicine

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ORIGINAL RESEARCH

Preliminary pediatric clinical evaluation of the oral probiotic *Streptococcus salivarius* K12 in preventing recurrent pharyngitis and/or tonsillitis caused by *Streptococcus pyogenes* and recurrent acute otitis media

This article was published in the following Dove Press journal:
International Journal of General Medicine
29 November 2012

Table 2 Episodes of streptococcal oral pathology during 90 days of treatment with BLIS K12 in children (n = 41) with recurrent streptococcal pharyngitis and/or tonsillitis

	Pharyngitis/ tonsillitis in the previous year	Pharyngitis/ tonsillitis during BLIS K12
Number of episodes	152 (1 year)	3 (90 days)
Incidence/month/child	0.309	0.024*
Delta (%)		–92.2

Notes: *$P < 0.0001$ considering 152 episodes and $P < 0.01$ considering 38 episodes (152/4).
Abbreviation: BLIS, bacteriocin-like inhibitory substance.

This study has several limitations, in that it is not randomized nor placebo-controlled, and was also not blinded.

Drug, Healthcare and Patient Safety

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ORIGINAL RESEARCH

Use of *Streptococcus salivarius* K12 in the prevention of streptococcal and viral pharyngotonsillitis in children

This article was published in the following Dove Press journal:
Drug, Healthcare and Patient Safety
13 February 2014

Table 2 Episodes of pharyngotonsillitis caused by *Streptococcus pyogenes* in the two study groups (n=30/group)

	Treated	A/C	Untreated	A/C
January 31–April 30, 2012	94	3.1	90	3.0
January 31–April 30, 2013	3*,†	0.1	84‡	2.8
% reduction of episodes	96.79		6.79	

The multicenter, open, nonrandomized, controlled clinical trial was conducted on 61 pediatric individuals enrolled in the area of Milan,

Therapeutics and Clinical Risk Management

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ORIGINAL RESEARCH

Reduction of group A beta-hemolytic streptococcus pharyngo-tonsillar infections associated with use of the oral probiotic *Streptococcus salivarius* K12: a retrospective observational study

This article was published in the following Dove Press journal:
Therapeutics and Clinical Risk Management
19 January 2016

Conclusion

On the basis of the results of this **observational and retrospective** study, it appears that oral preparations containing SsK12 may provide a beneficial option for the prevention of pediatric GABHS RPTIs: their use may be particularly useful in patients who would otherwise be forced to undergo frequent cycles of antibiotic therapy. Hopefully, further investigations of this new approach to prophylaxis against GABHS infection will follow…

Table 2 Statistical analysis of GABHS infections in group treated with SsK12 and in control group during 90-day therapy

	Subjects
Group SsK12	76
Control	54

General data				Approach A			Approach B			Odds ratio
Analysis performed on the number of events with contingency analysis Fisher's exact test				Analysis without multiplicity			Analysis with multiplicity			
				Analysis performed on the number of events with contingency analysis Fisher's exact test			One-way mean Mann–Whitney nonparametric test			
Group	No event	1 event	2 or more events	Group	1 or more events	No event	Group	Number	Media	
SsK12 12 months	67	6	3	SsK12 12 months	9	67	SsK12 12 months	76	0.14	0.03 (0.02±0.11)
Control 12 months	12	36	6	Control 12 months	42	12	Control 12 months	54	0.88	
$P<0.001$				$P<0.001$			$P<0.001$			

Abbreviations: GABHS, group A beta-hemolytic streptococci; SsK12, *Streptococcus salivarius* K12.

Table 3 Statistical analysis of GABHS infections in group treated with SsK12 and in control group during 9 months of observation after therapy

	Subjects
Group SsK12	76
Control	54

General data				Approach A			Approach B			Odds ratio
Analysis performed on the number of events with contingency analysis Fisher's exact test				Analysis without multiplicity			Analysis with multiplicity			
				Analysis performed on the number of events with contingency analysis Fisher's exact test			One-way mean Mann–Whitney nonparametric test			
Group	No event	1 event	2 or more events	Group	Events	No event	Group	Number	Media	
SsK12 12 months	65	9	2	SsK12 12 months	11	65	SsK12 12 months	76	0.22	0.07 (0.03±0.16)
Control 12 months	15	23	16	Control 12 months	39	15	Control 12 months	54	1.1	
$P<0.001$				$P<0.001$			$P<0.001$			

Abbreviations: GABHS, group A beta-hemolytic streptococci; SsK12, *Streptococcus salivarius* K12.

Resistenza ai macrolidi

RACCOMANDAZIONE N° 27

In considerazione dell'elevata prevalenza di resistenza di *Streptococcus pyogenes* ai macrolidi, l'utilizzo di questa classe di farmaci va limitato ai soggetti con dimostrata allergia IgE-mediata ai β-lattamici, se possibile dopo aver dimostrato la sensibilità dello streptococco a questa classe di antibiotici (II-C).

I macrolidi, indicati nei pazienti veramente allergici, possono essere utilizzati nella realtà dell'Emilia-Romagna: il tasso di resistenza all'eritromicina (generalizzabile agli altri macrolidi) è infatti nettamente in calo dal 2007 (era oltre il 20%) e nel 2013 si attesta a 8,9% (Gagliotti *et al.*, 2014).

Le Infezioni in Medicina, n. 2, 82-87, 2009

Articoli originali

Original articles

Scomparsa della resistenza di *Streptococcus pyogenes* ai macrolidi in un'area del nord est e possibile nesso con il razionale utilizzo di molecole *long-acting*

Disappearance of Streptococcus pyogenes *macrolides resistance in an area of northeastern Italy: a possible link with rational long-acting macrolide consumption*

Rita De Rosa, Manuela Avolio, Paola Stano, Maria Luisa Modolo, Alessandro Camporese

S.C. di Microbiologia e Virologia, Azienda Ospedaliera S. Maria degli Angeli, Pordenone, Italy

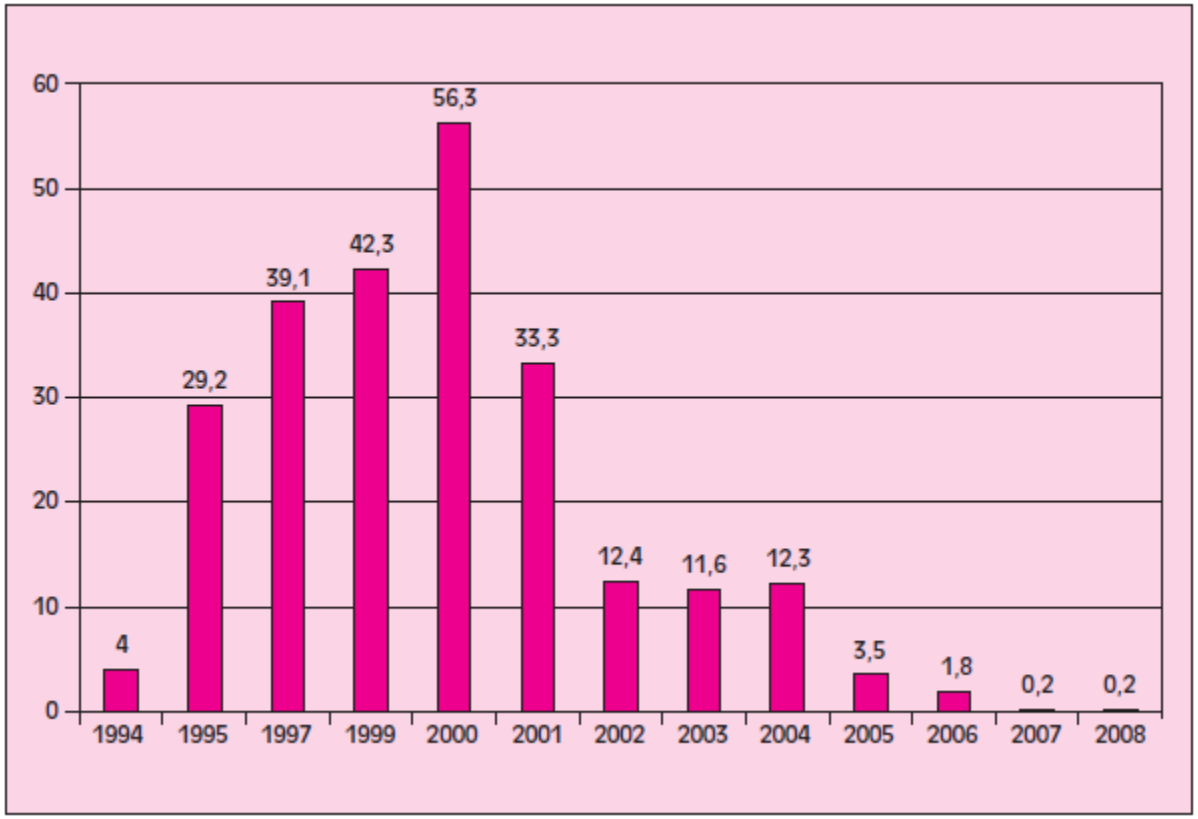

Figura 2 - Percentuali di resistenza di *Streptococcus pyogenes* ai macrolidi in provincia di Pordenone dal 1994 al 2008.

Erythromycin Resistance in *Streptococcus pyogenes* and Macrolide Consumption in a Central Italian Region

F. Montagnani et al.

Infection August 2009, Volume 37, Issue 4, pp 353-357

- In total, 320 strains (22.6%) were erythromycinresistant,
- . There was a significant decrease in erythromycin resistance during the study period
- From 28.1% in 2001 to 15.6% in 2006 ($p < 0.01$). No significant correlation was found between erythromycin resistance and local overall macrolide consumption, neither during the same year nor during the previous year.

Eur J Clin Microbiol Infect Dis (2015) 34:1797–1802
DOI 10.1007/s10096-015-2414-x

ARTICLE

Decline in macrolide resistance rates among *Streptococcus pyogenes* causing pharyngitis in children isolated in Italy

G. Gherardi[1] · D. Petrelli[2] · M. C. Di Luca[2,7] · F. Pimentel de Araujo[1,8] · P. Bernaschi[3] · A. Repetto[4] · J. Bellesi[5] · L. A. Vitali[6]

A total of 592 GAS isolates were collected from children with pharyngitis during the periods January–June 2012 and 2013. Patients were aged between 2 and 13 years (mean=6.7 years, standard deviation =2.7 years), and 56 % were males. A total of 44 GAS were erythromycin-resistant, with an overall rate of erythromycin resistance of 7.4 %. Over the 2-year period under investigation, a decreasing trend of erythromycin resistance was observed (28/293 isolates, 9.6 %, in 2012 vs. 16/299, 5.4 %, in 2013; p=0.06).

Le domande per l’esperto

- Terapia aerosolica (rinowash): è complementare o alternativa e con quali farmaci?
- Due parole sulla cellulite orbitaria

Decongestants, antihistamines and nasal irrigation for acute sinusitis in children (Review)

Shaikh N, Wald ER

Cochrane Library
Cochrane Database of Systematic Reviews

Authors' conclusions

There is no evidence to determine whether the use of antihistamines, decongestants or nasal irrigation is efficacious in children with acute sinusitis. Further research is needed to determine whether these interventions are beneficial in the treatment of children with acute sinusitis.

IDSA Clinical Practice Guideline for Acute Bacterial Rhinosinusitis in Children and Adults

Anthony W. Chow,[1] Michael S. Benninger,[2] Itzhak Brook,[3] Jan L. Brozek,[4,5] Ellie J. C. Goldstein,[6,7] Lauri A. Hicks,[8] George A. Pankey,[9] Mitchel Seleznick,[10] Gregory Volturo,[11] Ellen R. Wald,[12] and Thomas M. File Jr[13,14]

XI. Is Saline Irrigation of the Nasal Sinuses of Benefit as Adjunctive Therapy in Patients With ABRS?

Recommendation

16. Intranasal saline irrigations with either physiologic or hypertonic saline are recommended as an adjunctive treatment in adults with ABRS (weak, low-moderate).

E gli Steroidi nasali?

- Vi sono alcuni studi negli adulti e nei bambini che mostrano un miglioramento ma tutti soffrono di bias (selezione dei pazienti, criteri di diagnosi non stringenti, outcomes diversi).
- La comorbilità con una rinite allergica può aumentare l'effetto degli steroidi nasali negli adulti e nei bambini.
- Tutti gli steroidi sono equivalenti come efficacia , a dosaggi equivalenti
- Nei bambino non sono stati segnalati effetti avversi.

Wald ER, American Academy of Pediatrics. Clinical practice guideline for the diagnosis and management of acute bacterial sinusitis in children aged 1 to 18 years. Pediatrics. 2013 Jul;132(1):e262-80

Intranasal steroids for acute sinusitis (Review)

Cochrane Library

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Zalmanovici Trestioreanu A, Yaphe J

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XII. Are Intranasal Corticosteroids Recommended as an Adjunct to Antimicrobial Therapy in Patients With ABRS?

Recommendation. 17. Intranasal corticosteroids (INCSs) are recommended as an adjunct to antibiotics in the empiric treatment of ABRS, primarily in patients with a history of allergic rhinitis (weak, moderate).

Intranasal steroids for acute sinusitis (Review)

Zalmanovici Trestioreanu A, Yaphe J

Comparison: 1 Intranasal corticosteroids versus placebo

Outcome: 1 Proportion of participants with resolution of symptoms or improved (MFNS 400 g daily)

Study or subgroup	MFNS 400 g n/N	Placebo n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Meltzer 2005	224/235	225/252		57.8 %	1.07 [1.01, 1.12]
Nayak 2002	178/318	160/325		42.2 %	1.14 [0.98, 1.32]
Total (95% CI)	**553**	**577**		**100.0 %**	**1.10 [1.02, 1.18]**

Total events: 402 (MFNS 400 g), 385 (Placebo)

Heterogeneity: $Chi^2 = 1.30$, df = 1 (P = 0.25); $I^2 = 23\%$

Test for overall effect: Z = 2.60 (P = 0.0093)

Test for subgroup differences: Not applicable

Intranasal steroids for acute sinusitis (Review)

Zalmanovici Trestioreanu A, Yaphe J

Outcome: 3 Proportion of participants with resolution of symptoms or improved (combined MFNS 200, 400 and 800 g daily)

Study or subgroup	MFNS combined 200,400,800 n/N	Placebo n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Dolor 2001	39/47	30/48		5.5 %	1.33 [1.03, 1.71]
Meltzer 2005	442/478	225/252		54.9 %	1.04 [0.99, 1.09]
Nayak 2002	371/642	160/325		39.6 %	1.17 [1.03, 1.34]
Total (95% CI)	**1167**	**625**		**100.0 %**	**1.11 [1.04, 1.18]**

Total events: 852 (MFNS combined 200,400,800), 415 (Placebo)

Heterogeneity: $Chi^2 = 9.55$, $df = 2$ ($P = 0.01$); $I^2 = 79\%$

Test for overall effect: $Z = 3.26$ ($P = 0.0011$)

Test for subgroup differences: Not applicable

Molti modelli

Doccia nasale

doccia nasale veloce ed efficace per:

- **LAVAGGIO**
- **TRATTAMENTO** con farmaci

La doccia nasale eroga una **nebulizzazione specifica** per rimanere nell'ambito dei **distretti del rinofaringe**, e non scendere sino al livello polmonare.

Accessori

adattatori nasali di diverse misure, realizzati in materiale morbido e biocompatibile.

Fino a 3 anni
Up to 3 years of age

Da 3 a 12 anni
From 3 to 12 years

Da 12 anni in su
12 years and older

PULSATING AEROSOL

Pulsating airflow and drug delivery to paranasal sinuses

Winfried Möller[a], Christian Lübbers[b], Wolfgang Münzing[c] and Martin Canis[d]

Current Opinion in Otolaryngology & Head and Neck Surgery 2011, 19:48–53

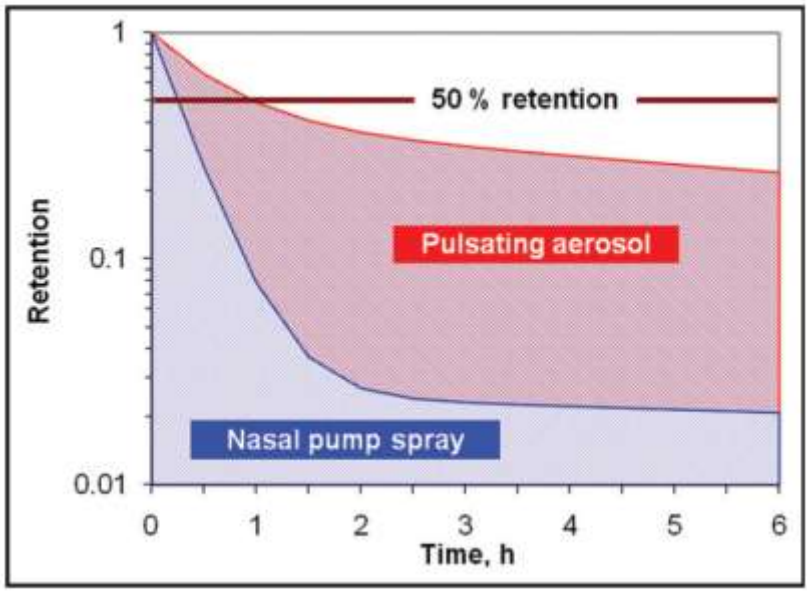
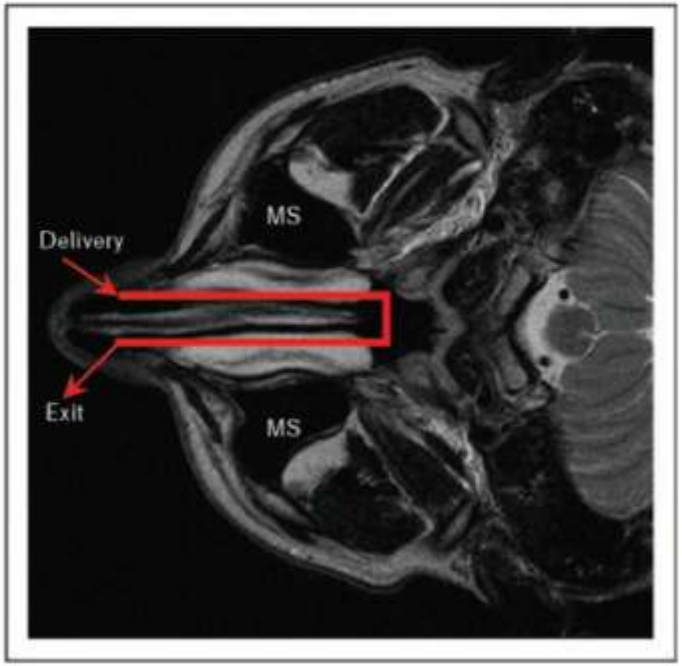
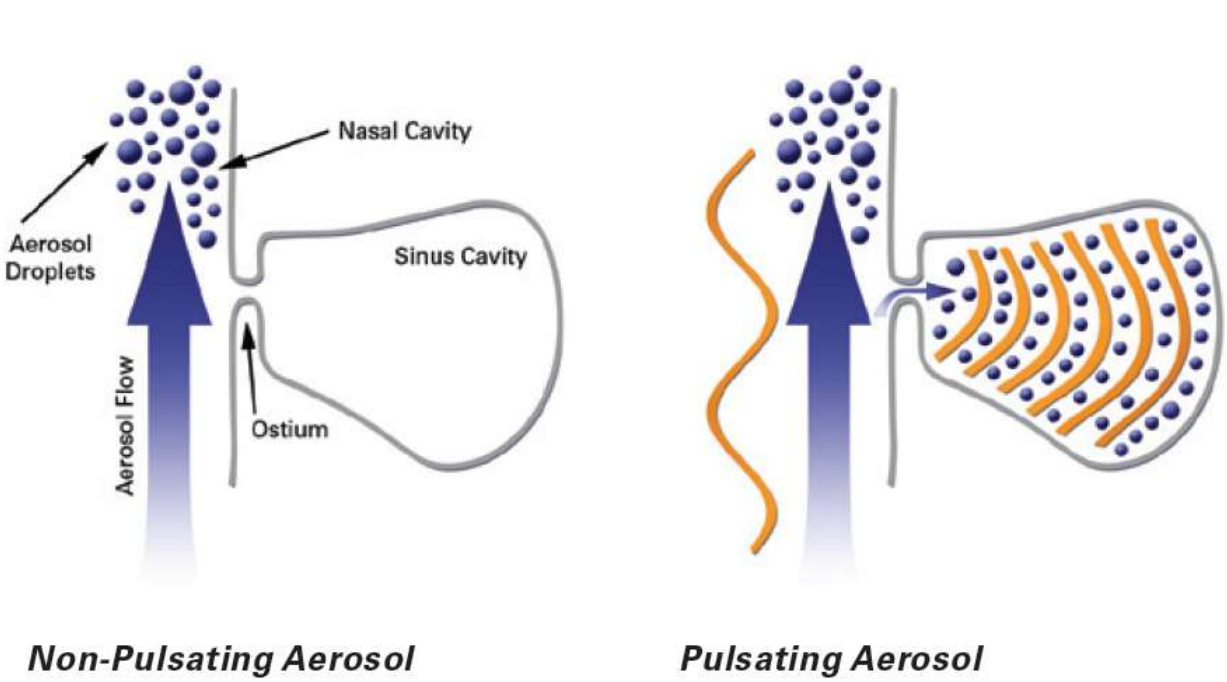


Figure 1 Slice of an axial MRT scan of one volunteer with illustration of the maxillary sinuses and the pathway of the aerosol stream through the nasal cavity during pulsating aerosol delivery and closed soft palate



PULSATING AEROSOL



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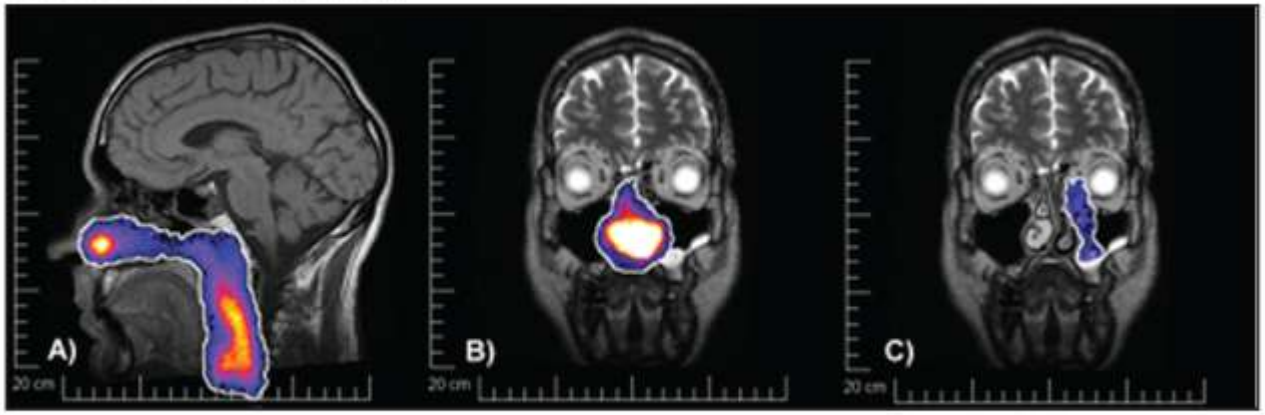
PULSATING AEROSOL

Metered Nasal Pump Spray



PARI Vibrent producing a pulsating aerosol

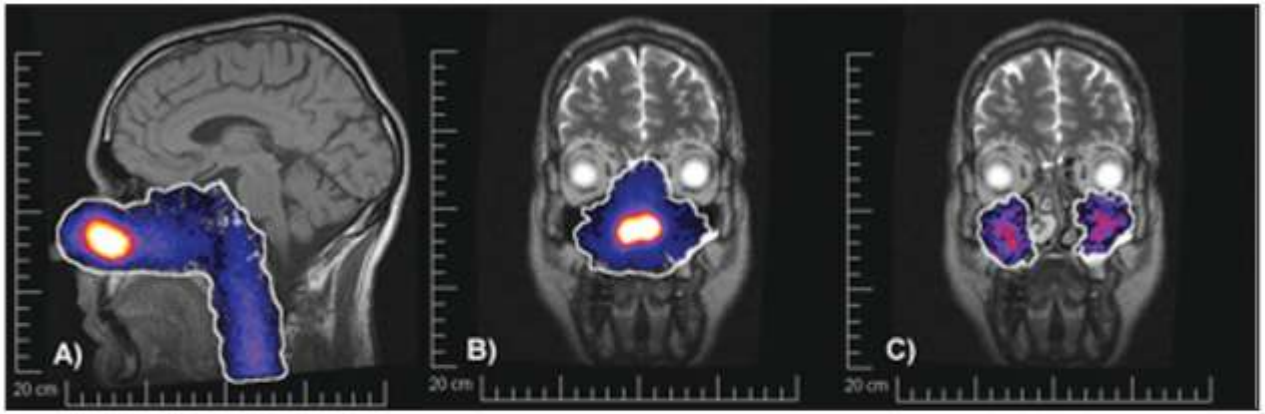
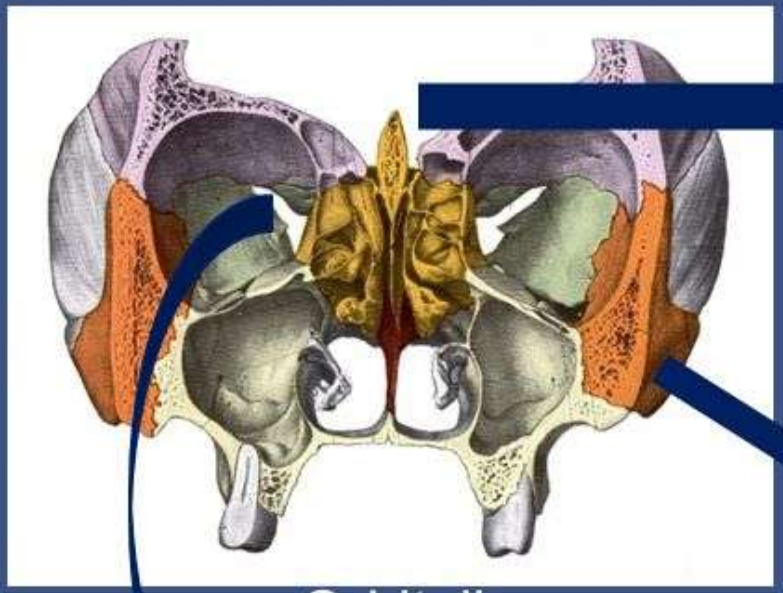


Figure 2: ^{99m}Tc-DTPA activity distribution image of a 100 µl metered pump spray (upper panel) versus the pulsating aerosol delivery for 20 seconds using the PARI Vibrent (lower panel) in lateral (A) and anterior view without a nasal shield (B) and with a nasal shield (C).

Möller W, 2011

COMPLICANZE DELLA RINOSINUSITE ACUTA



Intracraniche:

- Empiema epidurale
- Empiema subdurale
- Trombosi del seno cavernoso o sagittale
- Ascesso cerebrale
- Meningite

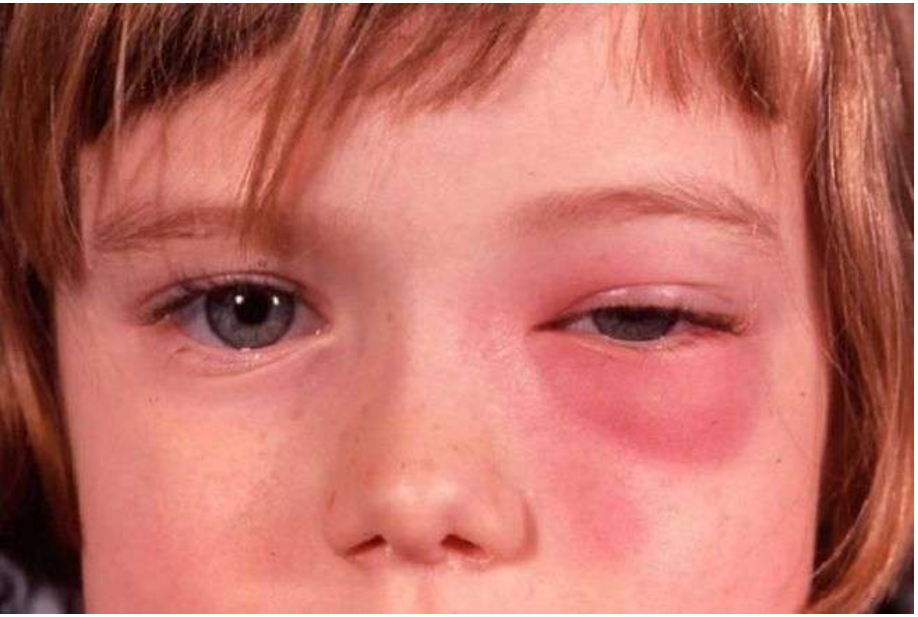
Orbitali:

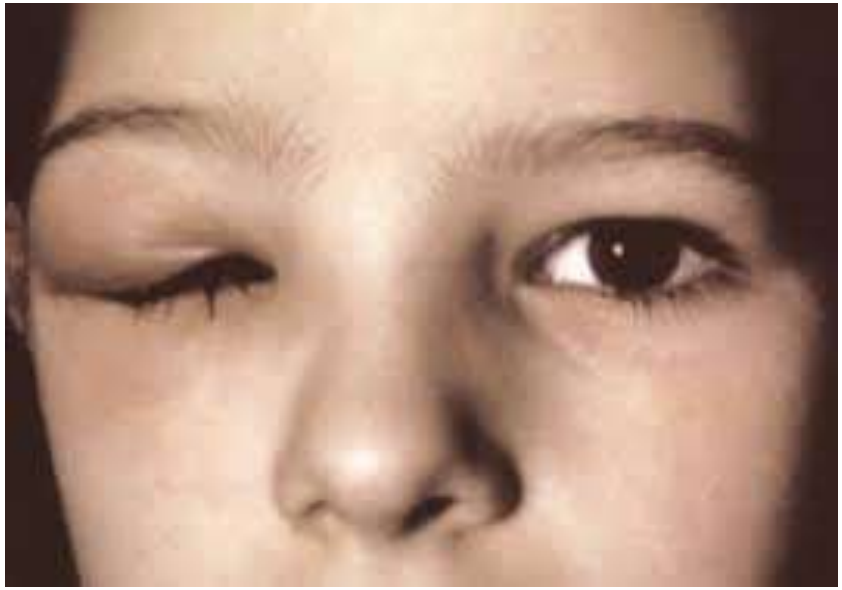
- Ascesso subperiostale
- Ascesso retro-orbitario
- Cellulite orbitaria
- Neurite ottica

Ossee:

- Osteomielite frontale
- Osteomielite mascellare

Wald ER. Sinusitis in children. NEJM 326: 319-323; 1992





The most common complication of acute sinusitis involves the orbit in children with ethmoid sinusitis who are younger than 5 years. Orbital complications should be suspected when the child presents with a swollen eye, especially if accompanied by proptosis or impaired function of the extraocular muscles. Orbital complications of acute sinusitis have been divided into 5 categories: sympathetic effusion, subperiosteal abscess, orbital cellulitis, orbital abscess, and cavernous sinus thrombosis.

Linee guida ISDA

- XVII. Which Imaging Technique Is Most Useful for Patients
- With Severe ABRS Who Are Suspected to Have Suppurative
- Complications Such as Orbital or Intracranial Extension of
- Infection?

- Recommendation
- 24. In patients with ABRS suspected to have suppurative
- complications, obtaining axial and coronal views of contraste nhanced CT rather than MRI is recommended for localization of infection and to guide further treatment (weak, low).

Linee guida AAP

Key Action Statement 2B

Clinicians should obtain a contrastenhanced

CT scan of the paranasal sinuses and/or an MRI with contrast whenever a child is suspected

of having orbital or central nervous system complications of acute bacterial sinusitis (Evidence Quality: B; Strong Recommendation).

Linee guida SIP

COMPORTAMENTO IN CASO DI COMPLICANZE

Raccomandazione 14

. In corso di rinosinusite, la presenza di complicanze impone un intervento multidisciplinare aggressivo e immediato

(Forza della raccomandazione B-Livello di prova IV).

Qualora siano dimostrabili alterazioni della funzione oculare, estroflessione del bulbo oculare o segni neurologici suggestivi di problematiche endocraniche, è tassativo sia eseguire immediatamente le indagini di diagnostica per immagini (TC e/o RM) utili a verificare l'entità del danno e la necessità di un intervento chirurgico, sia richiedere la consulenza dello specialista oculista, dell'otorinolaringoiatra e del neurochirurgo. Nell'attesa, si deve attuare la terapia antibiotica sopra indicata per i casi gravi

Linee guida SIP

- Le forme acute gravi senza apparenti complicazioni possonoessere trattate per via orale con amoxicillina-acido clavulanico (80-90 mg/kg/die, come amoxicillina,in 3 dosi).
- Il passaggio alla terapia endovenosa può essere previsto quando dopo 24-48 ore non vi sia miglioramento
- (**Forza della raccomandazione B – Livello di prova IV**).