A_pediatric_case_of_spots_and_*stumbles*

Windlin R[1], Wille DA[2], Paioni P[3], Demirbas S[2]

[1]Department of Pediatrics, Cantonal Hospital Baden, Baden, Switzerland; [2]Division of Pediatric Neurology, Department of Pediatrics, Cantonal Hospital Baden, Baden, Switzerland; [3]Division of Infectious Diseases, University Children's Hospital Zurich, Zurich, Switzerland

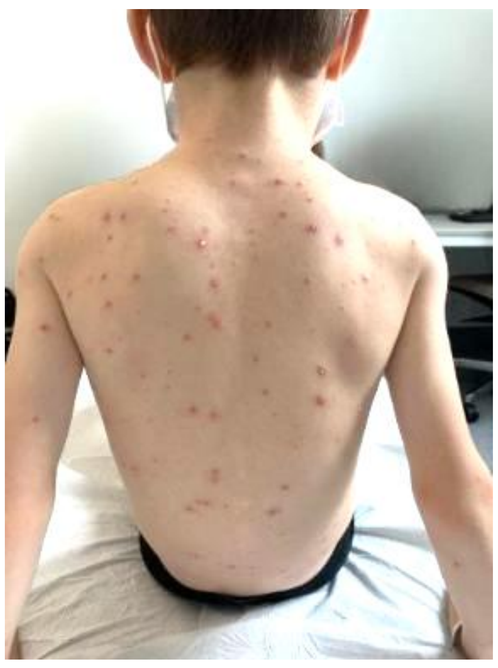
Background

Acute cerebellar ataxia (ACA) is the most common cause of acute ataxia in children and is usually a benign, self-limiting, postinfectious autoimmune phenomenon (1). Differentiation between acute postinfectious cerebellar ataxia (APCA) and acute infectious cerebellitis (AIC), which has significantly higher morbidity and mortality, remains challenging (2). Varicella-zoster virus (VZV) is a notable causative agent (3).

Methods

Case report and literature review

Case Report

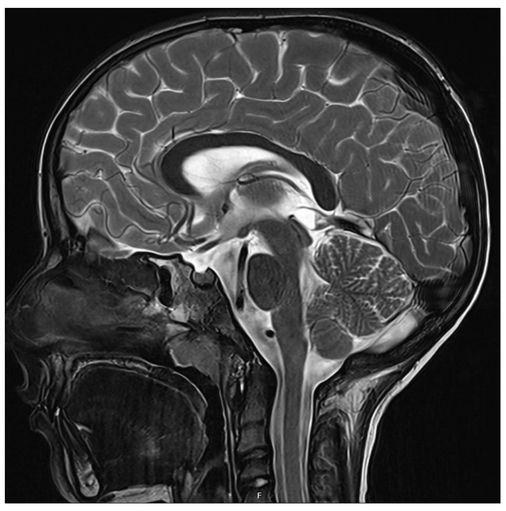


Picture 1: vesicular rash

A previously healthy, VZV-unimmunized 7-year-old boy developed acute progressive gait disturbance *(QR-code)*, impaired fine motor skills, vomiting and headache on day 7 of an acute VZV infection with fever and uncrusted vesicular rash *(picture 1)*.

Neurological examination revealed severe progressive truncal and limb ataxia *(QR-code)*, symmetric intention tremor and saccadic eye movements.

QR-code: videoclips



Picture 2: MRI sag. T2

Neuroimaging (MRI) was unremarkable *(picture 2)*. Cerebrospinal fluid (CSF) analysis showed mild mononuclear pleocytosis and positive VZV PCR.

Due to the severity of symptoms and VZV detection in CSF intravenous steroid and antiviral treatment were initiated along with supportive care including physiotherapy. The patient recovered fully within 3 weeks.

Symptoms	APCA	AIC	Case
Clinical cerebellar signs: Truncal and limb ataxia Dysmetria Dysdiadochokinesia Intention tremor Nystagmus / saccadic eye movements	X	X	X
Vomiting		X	X
Headache		X	X
Fever		X	X

Table 1: Comparing symptoms of APCA and AIC with our case (1)

Discussion

This case highlights the difficulty of distinguishing AIC from the more common APCA. Older age and early onset of severe and progressive cerebellar symptoms during an active VZV infection accompanied by headache, vomiting and fever favor AIC and should prompt further investigations (1) . Here normal MRI findings favor APCA whereas VZV detection in CSF support AIC. Rapid recovery may reflect early treatment of AIC or underlying APCA. Acute disseminated encephalomyelitis was unlikely due to absence of encephalopathy, extra-cerebellar signs and MRI abnormalities.

Conclusion

- Most cases of acute cerebellar ataxia are self-limiting acute postinfectious cerebellar ataxia
- Careful history taking and clinical assessment are essential to identify red flags suggestive of AIC and to prompt further investigations.
- Early diagnosis and treatment of AIC are crucial due to its high morbidity and mortality.

References

1) Poretti A, Benson JE, Huisman TA, Boltshauser E. Acute ataxia in children: approach to clinical presentation and role of additional investigations. Neuropediatrics. 2013 Jun;44(3):127-41.
2) Yildirim M, Gocmen R, Konuskan B, Parlak S, Yalnizoglu D, Anlar B. Acute Cerebellitis or Postinfectious Cerebellar Ataxia? Clinical and Imaging Features in Acute Cerebellitis. J Child Neurol. 2020 May;35(6):380-388.
3) Kriger O, Dovrat S, Fratty IS, Leshem E, Oikawa MT, Sofer D, Amit S. Don't rash it! The clinical significance of positive Varicella zoster virus PCR in cerebrospinal fluid of patients with neurological symptoms. J Clin Virol. 2024 Apr;171:105648.

KS_B

SARS-CoV-2 reinfection and risk of Multisystem Inflammatory Syndrome in Children: A case-control study

N. Schiever, L. Lenglart, C. Levy, P-A. Crisinel, A.G. L'Huillier, J.N. Siebert, M. Plebani, Y. Fougere, A. Lefevre-Utile, A. Rybak, E. Burdet, A. Dupont, O. Brissaud, J. Bordet, L. Percheron, C. Brehin, N. Vanel, C. Ovaert, A. Belot, A. Morand, J. Toubiana, M. Grimaud, S. Dauger, J. Baleine, S. Bechet, A. Burtscher, A. Wollner, R. Cohen, P-L. Leger, C. Galeotti, R. Basmaci, C. Aupiais, N. Ouldali, F. Angoulvant

Service of Pediatrics, Department Women-Mother-Child, Lausanne University Hospital and University of Lausanne, Lausanne, Switzerland

Background

Multisystem inflammatory syndrome (MIS-C) in children is a severe post-infectious inflammatory syndrome occurring 2-6 weeks after SARS-CoV-2 infection with multisystem involvement (mucocutaneous, cardiovascular) [1]. Incidence and severity of MIS-C have declined across successive pandemic waves. Reinfections have become increasingly frequent, especially during Omicron period [2,3].

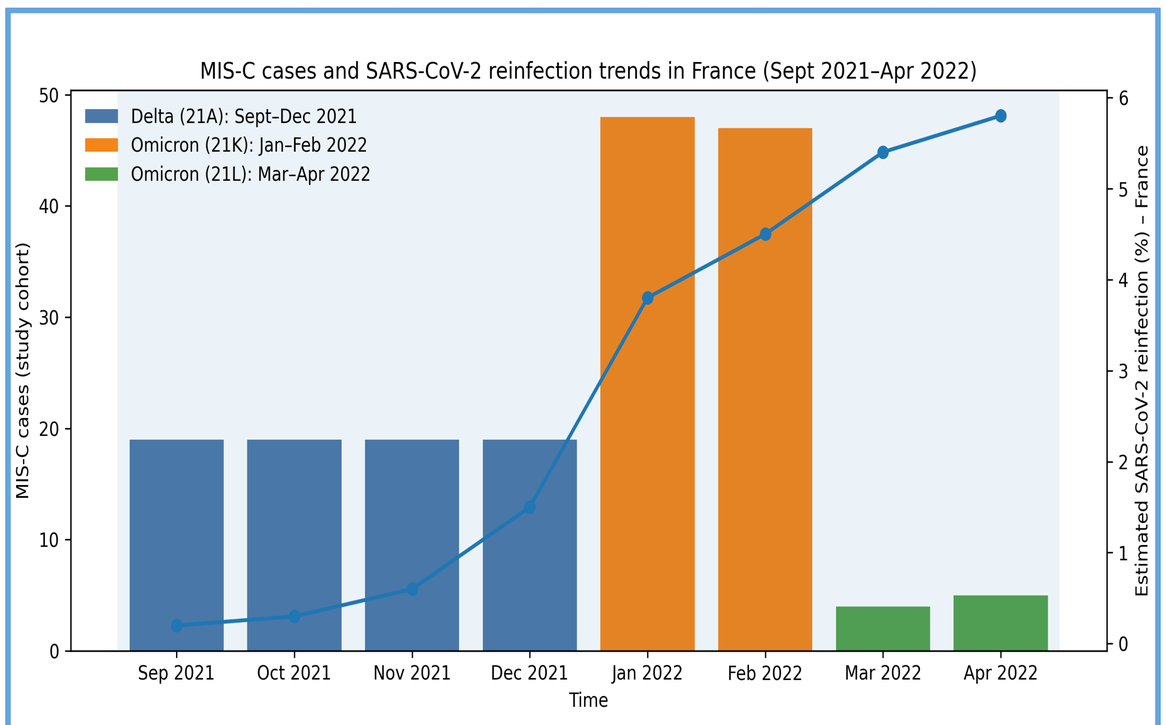


Figure 1: Temporal distribution of MIS-C cases and SARS-CoV-2 reinfection trends in France[2].

Objective

The objective of the study was to compare the risk of MIS-C following a primary SARS-CoV-2 infection versus reinfection in children.

Study Design and Methods

- Retrospective, multicenter, international matched case-control study
- Study period: September 2021-April 2022
- Cases: 180 children with MIS-C (France and Switzerland)
- Controls: 180 children with acute SARS-CoV-2 infection (France)
- Matching: 1:1 on sex, age group (<25/≥ 25 months) and epidemic period
- Exposure: Documented SARS-CoV-2 reinfection ≥ 6 months prior (serology, PCR testing, antigen test)
- Primary analysis: McNemar test and matched OR

Results

0% of MIS-C cases vs 3.9% of controls had previous reinfection

- MIS-C cases: 0/180 reinfections
- Controls: 7/180 reinfections
- McNemar $\chi^2 = 5.14$, P=0.023
- Matched OR=0.067 95% CI [0.004-1.167] P=0.064

<u>Sensitivity analyses</u>

- Conditional logistic regression: 81.7% lower odds of MIS-C after reinfection
- Results consistence across alternative matching strategies (1:2 matching on age)

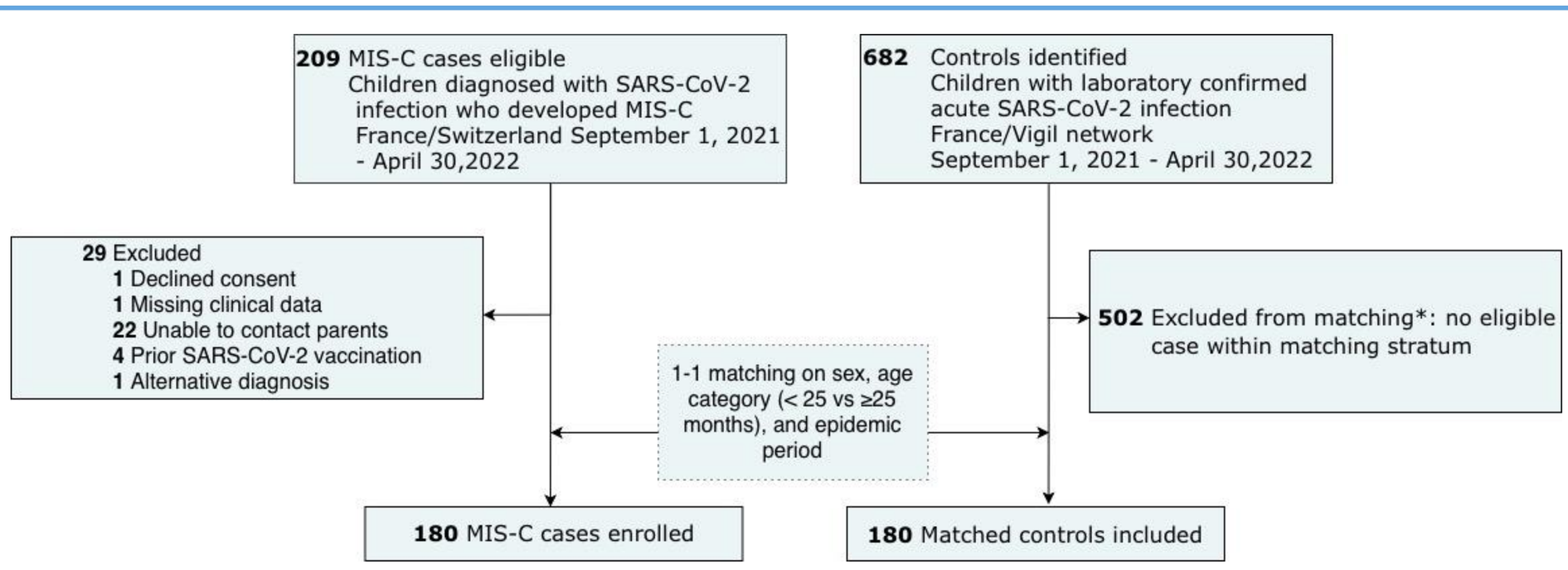


Figure 2: Study flow chart and matching profile

Conclusion

MIS-C risk appears to be concentrated after the primary SARS-CoV-2 infection, while reinfection carries a markedly lower risk. These findings are consistent with population-based data showing a decline in MIS-C cases over time [3]. It supports the hypothesis that naturally acquired immunity may play a protective role against severe post-infectious complications. Although the current incidence of MIS-C is low, it is not zero; therefore, ongoing vaccination and continued surveillance remain essential to prevent severe post-infectious outcomes and to detect potential shifts in risk should new variants emerge.

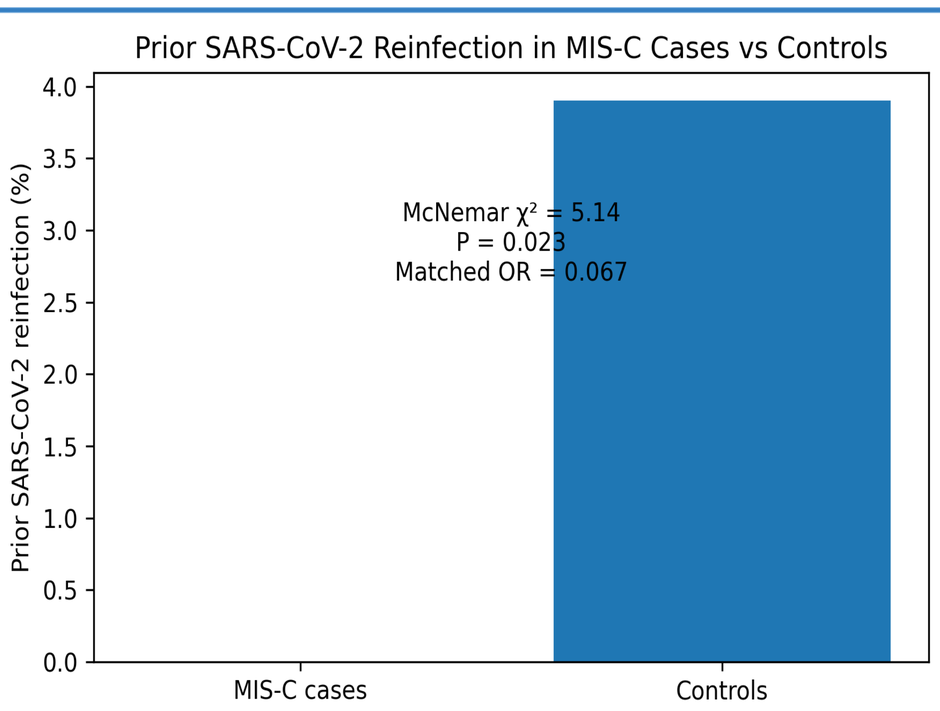


Figure 3: Prior SARS-CoV-2 reinfection in MIS-C Cases versus controls

1. Acholonu C, Cohen E et al. Multisystem Inflammatory Syndrome in Children. Pediatr Ann. 2023.
2. Santé publique France. *Point épidémiologique COVID-19, March–April 2022.*
3. Shingleton J, Williams H et al The changing epidemiology of PIMS-TS across COVID-19 waves: prospective national surveillance, January 2021 to July 2022, England. Vol. 85, Journal of Infection. 2022.

Corresponding email : noemie.schiever@chuv.ch

ACTI

Centre hospitalier universitaire vaudois

Parental Attitudes about Lyme borreliosis in Switzerland

Presenter: Michelle Covi
Email: michelle.covi@pfizer.com
Pädiatrie Schweiz, June 11 – 12, 2026
Poster Nr: P 25

Michelle Covi[1], Charles Nuttens[2], Emily Colby[3], James H. Stark[4], L. Hannah Gould[5]

[1]Vaccines Medical Affairs, Pfizer AG, Zurich, ZH, Switzerland; [2]Global Vaccines Medical Affairs, Pfizer Research & Development, Pfizer SAS, Paris, France; [3]Global Real-World Evidence, Pfizer Inc., New York, NY, USA; [4]Global Vaccines Medical Affairs, Pfizer Research & Development, Pfizer Inc., Cambridge, MA, USA; [5]Global Vaccines Medical Affairs, Pfizer Research & Development, Pfizer Inc., New York, NY, USA

INTRODUCTION

Lyme borreliosis (LB), a bacterial infection caused by various genospecies of *Borrelia burgdorferi sensu lato* complex, is transmitted to humans through the bite of infected *Ixodes spp* ticks and is the most common tick-borne disease in Europe.[1,2]

LB affects persons of all ages. Among cases in children, the 5–9 age stratum (or other strata spanning that age range) was consistently found to contribute the highest proportion of cases.[3] However, data about how respondents with children perceive their children's risk of LB is not well described.

In 2022, we surveyed adults with children in 20 European countries to describe their knowledge about LB and level of concern about their children contracting LB.[4]

This poster presents the results of the survey for respondents in Switzerland.

METHODS

We used an existing survey panel to conduct an online survey of adults aged 18–65 years old who reported having children, with recruitment quotas on age, gender, and region.

The survey included questions about LB knowledge, tick exposure, and outdoor activities. We conducted descriptive analyses with weighting to adjust for the complex survey design (**Table 1**).

RESULTS

Of **560** respondents with children (**Table 1**), **98%** were aware of ticks and **63%** were aware of LB (**Figure 1a**; **Figure 1b**).

Among respondents aware of ticks, **46%** reported that their child had ever been bitten by a tick, with **75%** of these bites reportedly occurring within the past year.

Among those aware of ticks and LB, **53%** were concerned or very concerned about their child contracting LB, **44%** believed their child was at high or very high risk of contracting LB, and **52%** felt confident that their child could avoid exposure to ticks by using prevention measures such as bug spray and long pants (**Figure 2**).

Respondents reported that their children spent an average of **8** hours per week doing outdoor activities during April through November (**Table 2**).

CONCLUSION

In Switzerland, respondents with children are concerned about their children's risk of developing LB.

Since children spend a lot of time outdoors and do not regularly use prevention measures, it is deemed important to address the risk for contracting LB and to mitigate this public health concern.

Table 1. LB survey demographics of respondents with children (weighted by country region, gender, and age) in Switzerland in 2022, overall and stratified by urban, suburban, and rural urbanicities.

Respondent Characteristics				
Overall and stratified by urbanicity				
Characteristic	**Overall (N=560)**	**Urban (N=235)**	**Suburban (N=158)**	**Rural (N=167)**
Age				
18–29	80 (14.22%)	40 (17.02%)	27 (16.78%)	13 (7.84%)
30–39	197 (35.10%)	95 (40.34%)	66 (41.55%)	36 (21.63%)
40–49	162 (28.90%)	63 (26.81%)	42 (26.66%)	57 (33.97%)
50–65	122 (21.78%)	37 (15.84%)	24 (15.00%)	61 (36.55%)
Gender				
Female	246 (43.81%)	92 (39.06%)	75 (47.40%)	79 (47.11%)
Male	314 (56.01%)	142 (60.51%)	83 (52.60%)	88 (52.89%)
Other	1 (0.18%)	1 (0.42%)	0	0
Years of education obtained				
9–10 years	126 (22.46%)	44 (18.80%)	31 (19.84%)	50 (30.09%)
11–13 years	178 (31.67%)	64 (27.34%)	60 (37.77%)	53 (32.00%)
≥14 years	257 (45.87%)	127 (53.85%)	67 (42.39%)	63 (37.92%)

Figure 1a. Proportions of tick-aware in respondents with children by survey region in Switzerland.

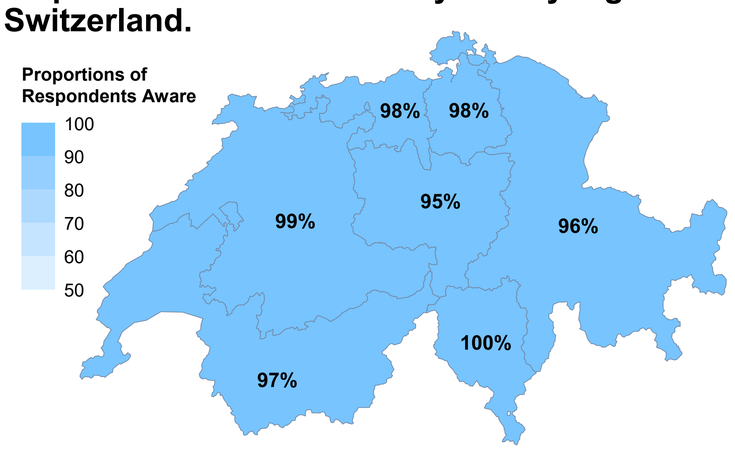


Figure 1b. Proportions of LB-aware in respondents with children by survey region in Switzerland. LB awareness is measured among respondents who responded awareness of ticks.

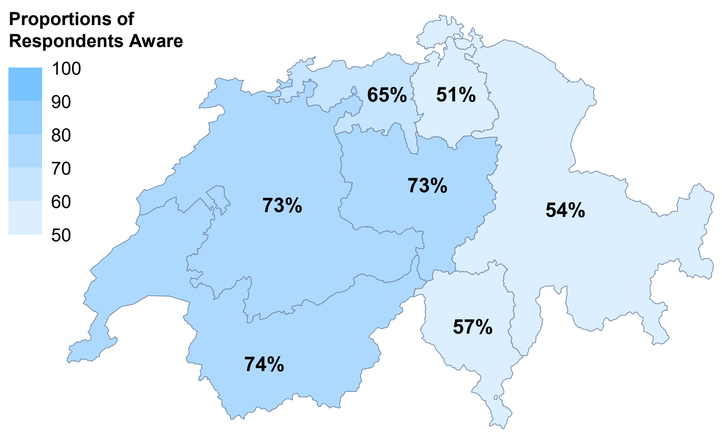


Figure 2. Percentages of LB perceptions related to children by urbanicity in Switzerland in 2022. Results shown are among tick-aware and LB-aware respondents with children only.

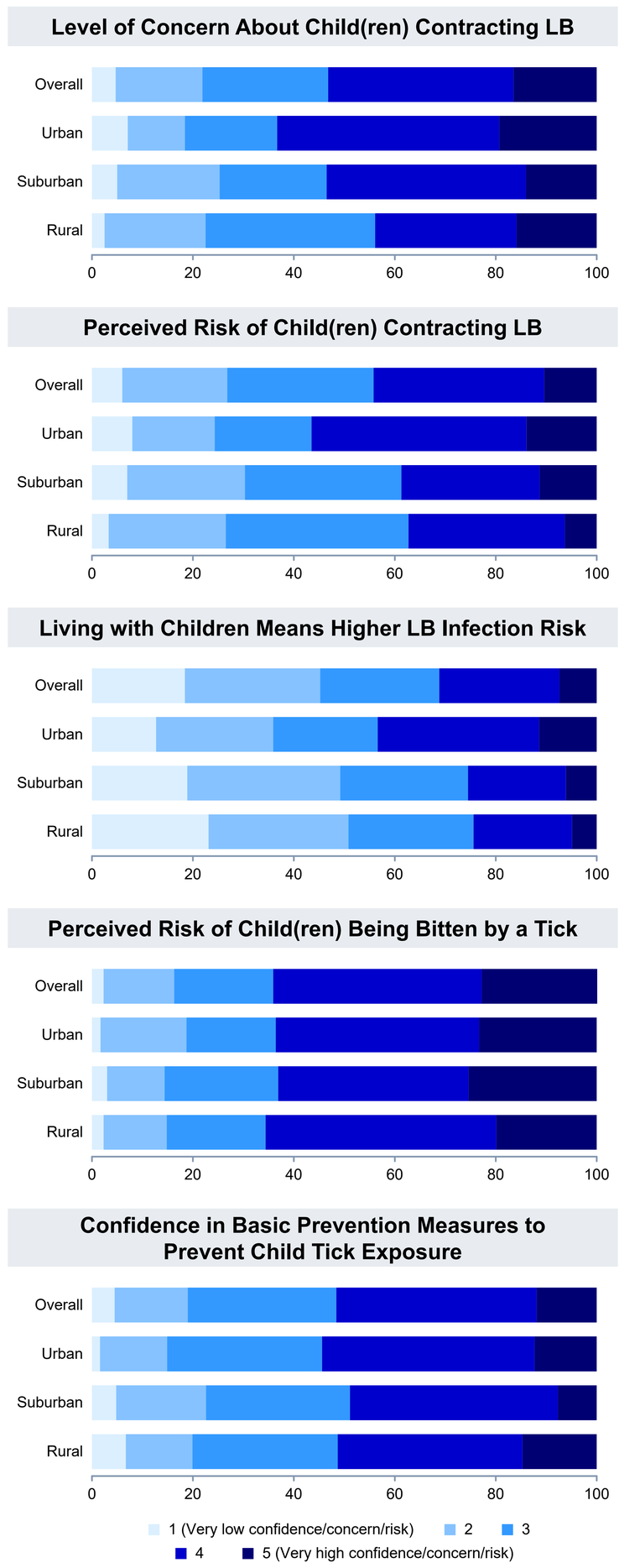


Table 2. Average reported weekly time spent outdoors by children in green spaces from April to November in Switzerland in 2022.

Average Reported Time Spent Outdoors				
Overall and stratified by urbanicity				
Activities	**Overall Mean (SD)**	**Urban Mean (SD)**	**Suburban Mean (SD)**	**Rural Mean (SD)**
Weekly average time spent outdoors in respondent children by urbanicity	8.0 (7.2)	7.3 (7.1)	8.9 (7.4)	8.2 (7.1)

REFERENCES

1. Medlock JM, Hansford KM, Bormane A, et al. Driving forces for changes in geographical distribution of Ixodes ricinus ticks in Europe. *Parasit Vectors*. 2013;6:1. doi:10.1186/1756-3305-6-1; 2. Nau R, Christen HJ, Eiffert H. Lyme disease--current state of knowledge. *Dtsch Arztebl Int*. 2009;106(5):72-I. doi:10.3238/arztebl.2009.0072; 3. Shafquat M, Angulo FJ, Pilz A, Moïsi JC, Stark JH. The Incidence of Lyme Borreliosis Among Children. *Pediatr Infect Dis J*. 2023;42(10):867-874. doi:10.1097/INF.0000000000004040; 4.Gould LH, Colby E, Pilz A, et al. Lyme borreliosis awareness and risk perception: a survey in 20 European countries. *Epidemiol Infect*. 2025;153:e29. doi:10.1017/S0950268825000068

This study was sponsored by Pfizer.

OSTEOARTICULAR INFECTION · PEDIATRICS

To swab or not to swab?

The role of *Kingella kingae* PCR in an afebrile limping toddler

Marta Rigau i Sabadell[1], N. Lutz[2], A. Rybak[1]
1. Pediatric Emergency Department, Hôpital des Enfants, Lausanne University Hospital (CHUV), Lausanne, Switzerland
2. Department of Pediatric Traumatology, Hôpital des Enfants, Lausanne University Hospital (CHUV), Lausanne, Switzerland

ⓘ BACKGROUND

Afebrile limping is a common reason for ED consultation in toddlers. In Romandy, oropharyngeal PCR for **Kingella kingae (KK)** is recommended to support diagnosis of osteoarticular infection (OAI) in children under 4 years.[2]
Interpretation of this test remains *challenging*, as illustrated by this case.

KEY QUESTION

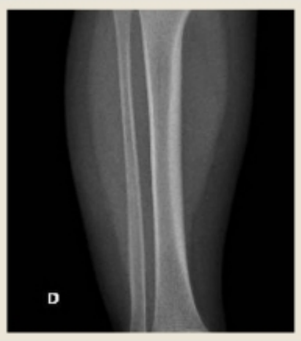
*When a child presents with an **afebrile limp**, should routine oropharyngeal KK-PCR be performed?*

CASE PRESENTATION

Day 0

ED presentation

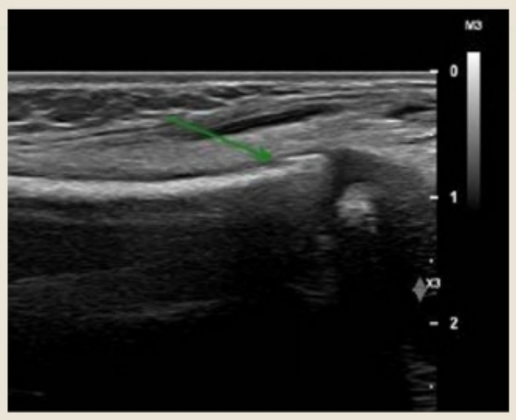
- 18-month-old, afebrile limp & refusal to bear weight after low-energy fall
- Distal tibial tenderness — no swelling, no joint limitation, no fever
- X-rays: normal
- Labs: no inflammatory response
- KK-PCR swab performed per local algorithm



Day 2

48 h reassessment

- Limp persists — no fever, no clinical deterioration
- Repeated labs: still normal
- Ultrasound: possible subperiosteal lesion despite negative initial X-rays
- Conservative management — analgesia + outpatient follow-up

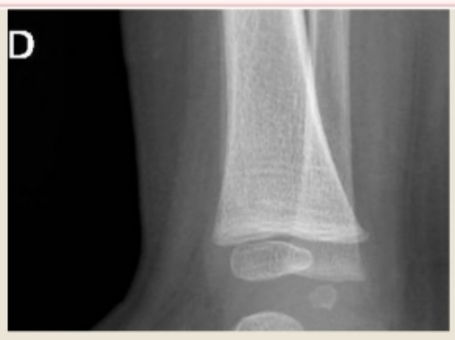


Day 10

Orthopaedic review

- Periosteal reaction on X-ray
- Distal tibial fracture confirmed
- Traumatic etiology — no evidence of infection

☐ **KK-PCR result: positive**
Deemed **clinically irrelevant** — consistent with asymptomatic oropharyngeal carriage, not OAI.



DISCUSSION

This case illustrates how a positive KK-PCR result can mislead clinicians toward OAI when clinical findings are inconsistent with infection and clearly support an alternative diagnosis.[3,4] A recent study reported a PPV of 33% and specificity of 71% in febrile children — likely even lower in afebrile toddlers.[6]

DIAGNOSTIC PITFALL

Asymptomatic KK oropharyngeal carriage is frequent in toddlers, especially daycare attendees.[4] A positive PCR does not confirm OAI.[3]

UNNECESSARY BURDEN

Positive PCR led to invasive investigations and increased costs with no clinical benefit.[3]

CLINICAL CONTEXT FIRST

Is KK-PCR useful in afebrile children which are at low risk of OAI ?
Study planned.

CONCLUSION

In afebrile limping toddlers with ***low pre-test probability of infection***, clinicians should be aware that routine oropharyngeal KK-PCR may yield positive results even in the absence of OAI,[4,5] while increasing costs and leading to unnecessary invasive investigations.[3,6] This report illustrates the need for prospective studies to assess the clinical impact of KK-PCR in this diagnostic algorithm.

REFERENCES

1. Ped-Ro Algorithm Limping child in the ED. 2024.
2. Dodwell ER et al. Osteoarticular infections in children. Pediatr Infect Dis J. 2017;36:621–8.
3. Gravel J et al. Oropharyngeal KK carriage and OAI: case-control study. CMAJ. 2017;189:E1107–11.
4. Yagupsky P. Kingella kingae: carriage, transmission, disease. Clin Microbiol Rev. 2015;28:54–79.
5. Ceroni D et al. Oropharyngeal KK carriage in children. Pediatr Res. 2015;78:280–5.
6. Nielsen AB et al. Kingella kingae in pediatric bone and joint infections: the diagnostic value of oropharyngeal testing. Pediatr Infect Dis J. 2026;45(3).

Évaluation de l'immunité antipneumococcique chez les enfants porteurs d'implant(s) cochléaire(s)

A. Hominal (1,2), R. Gualtieri (1,3), B. Lemaitre (4), K. Pósfay-Barbe (1,2), H. CaoVan (1,2,5), G. Blanchard-Rohner (1,2)
(1) Fac. médecine UNIGE (2) HUG pédiatrie (3) CHUV pédiatrie (4) Labo. vaccinologie HUG (5) CURIC HUG

Étude rétrospective
CURIC – HUG de 01.2019 à 12.2023

50 enfants inclus
Age médian 1.5 ans

7 sérotypes PCV13
IgG ≥ 0.5 mg/L = protection

Séro-protection globale
≥ 4/7 sérotypes

INTRODUCTION

- **Implant cochléaire (IC)** → risque accru infections pneumococciques invasives et non invasives
- **Recommandations OFSP 2023**
  - **< 5 ans :** PCV13 à 2, 4 et 12 mois
  - **≥ 2 ans + IC planifié :** dose supplémentaire de PCV13

OBJECTIFS

- **Respect des recommandations vaccinales** chez les porteurs d'IC
- **Immunité protectrice** atteinte après vaccination
- **Réponse sérotype-spécifique** au PCV13

METHODE

- **Étude rétrospective**, CURIC – HUG, de 01.2019 à 12.2023
- **Inclusion**
  - **Suivi CURIC**, 1ère implantation < 16 ans (2009–2023), sérologie HUG (ECLIA)
  - **Carnet vaccinal**
- **Séro-protection :** IgG ≥ 0.5 mg/L par sérotype
- **Protection globale :** ≥ 4/7 sérotypes PCV13

RESULTATS

- **50 enfants** inclus — âge médian : **1.5 ans**
- **< 2 ans à l'implantation (n=33)**
  - **82%** (27/33) : vaccination de base à jour
  - **56%** (15/27) : immunité protectrice atteinte
- **≥ 2 ans à l'implantation (n=17)**
  - **24%** (4/17) : vaccination complète selon recommandations
  - **100%** (4/4): immunité protectrice atteinte
- **Séro-protection déclin** observé dès 5 ans post-vaccination (Fig. 1)
- **Sérotypes 6B, 14, 19 :** IgG élevées (Fig. 2)
- **Sérotypes 4, 9V, 18C :** IgG faibles (Fig. 2)

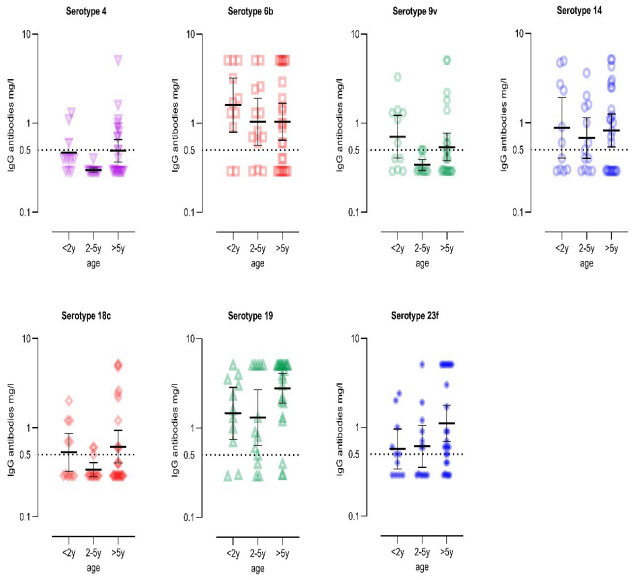


Figure 2 : Concentration géométrique moyenne (IC95%) des IgG pour 7 sérotypes pneumococciques

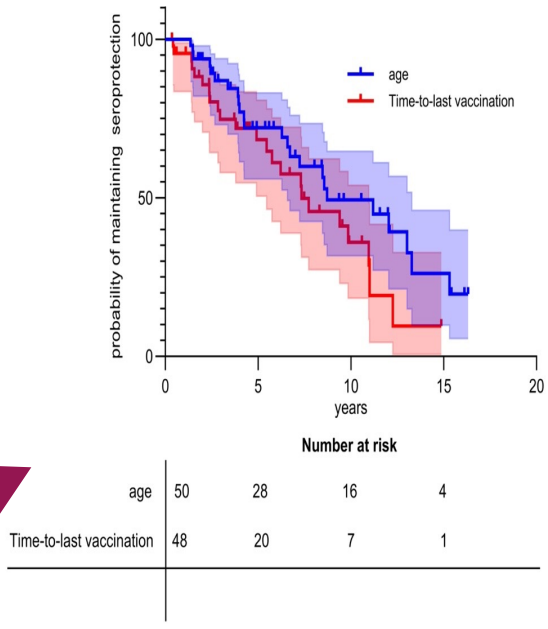


Figure 1 : Courbe de Kaplan-Meier — séro-protection dans le temps (bleu : âge, rouge : délai post-vaccination)

CONCLUSION

- **Dose supplémentaire de PCV13** recommandée dès la planification de l'IC chez les **enfants ≥ 2 ans**
- **Surveillance sérologique 1×/5 ans** pour adapter les rappels et maintenir une protection à long terme

Tick-Borne Encephalitis with stroke-like symptoms in a fully vaccinated adolescent – a case report

N. Laube[1], K. Ipekciler[1], F. Zucol[2], F. Bauder[3], B. Brotschi Aufdenblatten[1]
[1]Department of Pediatrics, Cantonal Hospital Winterthur, Switzerland; [2]Division of Pediatric Infectious Diseases; [3]Division of Pediatric Neurology

Introduction

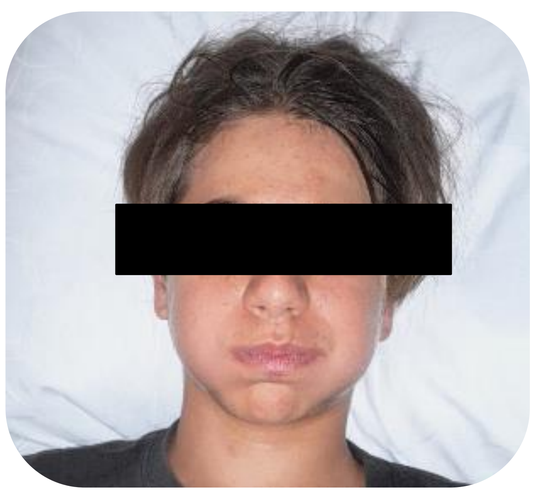
- Epidemiology & vaccination: 100–120 Tick-Borne Encephalitis (TBE) cases/year in Switzerland; 40.6% aged 6–11 yrs, 37.8% aged 12–17 yrs; vaccination recommended from age 3 yrs.[1]
- Vaccine coverage & effectiveness: 50% of children complete primary 3-dose series; complete vaccination >90% effective, protection lasts up to 10 years.[2, 3]
- Breakthrough & age considerations: rare breakthrough infections occur; vaccination effectiveness lower in children 1–16 yrs (87%) vs ≥17 yrs (>94%) but no increased risk of severe disease.[4, 5]

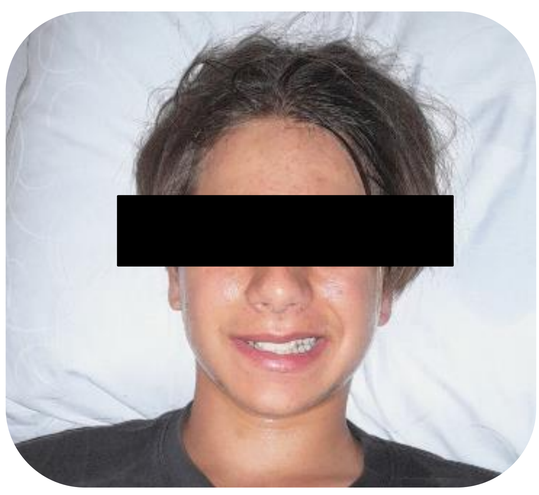
History

- 14-year-old healthy boy, fully vaccinated (including TBE)
- Presenting symptoms:
  - Newly developed unsteady gait
  - Dizziness and frontal headache
  - Fever for 4 days up to 40.6 °C
- Personal and family histories were unremarkable

Clinical Presentation

- Reduced general condition
- Vital signs were unremarkable
- Ataxia and tendency to fall to the left, as well as right-sided hemiparesis
- Development of a right-sided central facial palsy
- Symptoms fluctuated during hospitalization, leading to suspicion of a cerebrovascular disorder

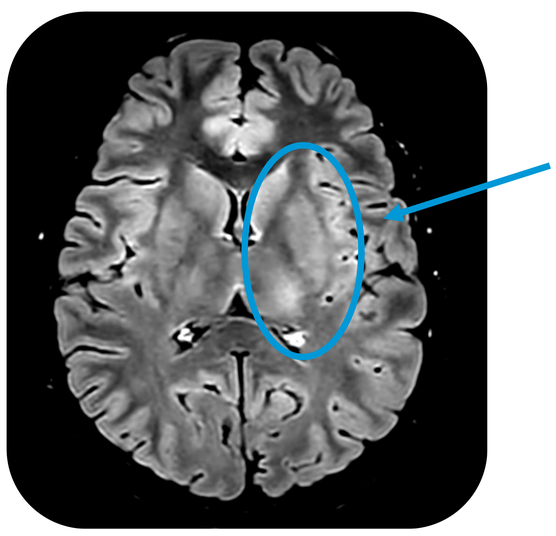




Diagnostics

Initial diagnostics
- Cranial CT scan: unremarkable
- Normal values for blood count, liver function, kidney function and blood gas
- Toxicological screening: negative

Cranial MRI
- Hyperintense lesions in the left thalamus, posterior limb of the internal capsule, adjacent white matter and the caudate nucleus, putamen and left hippocampus



CSF analysis
- Cell count: 128/µL, predominantly mononuclear (normal < 5/ µL)
- Protein: 498 mg/L (normal < 450 mg/l)
- Glucose Quotient: 0.51
- Lactate: 1.7mmol/l (normal < 2.1mmol/l)
- Meningitis panel negative (E. coli, H. influenzae, L. monocytogenes, N. meningitidis, S. agalactiae, S. pneumoniae, S. pyogenes, M. pneumoniae, HSV-1, HSV-2, HHV-6, Enterovirus, Human Parechovirus, VZV, Cryptococcus gattii/neoformans)

Blood Serology
- FSME-Virus IgG qn.: > 3000 U/l (normal < 100 U/ml)
- FSME-Virus IgM: positive

Treatment and Clinical Course

- Supportive: Antipyretics, analgesics, and intravenous fluids
- Empiric antibiotic treatment: ceftriaxone (4g once daily), discontinued after bacterial infection was excluded
- Gradual resolution of neurological symptoms during hospitalization. Discharged in improved general condition
- Outpatient follow-up: Complete recovery within 6 weeks.

Discussion

- Fluctuating, stroke-like symptoms especially in vaccinated children require consideration of TBE in the differential diagnosis
- MRI and serology remain essential for diagnosis

Conclusion

- Symptoms may fluctuate and mimic a cerebrovascular disorder
- TBE should also be considered in vaccinated patients

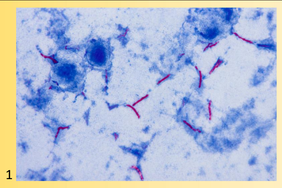
Literature: 1. Gäumann R, Růžek D, Mühlemann K, Strasser M, Beuret CM. Phylogenetic and virulence analysis of tick-borne encephalitis virus field isolates from Switzerland. J Med Virol. 2011 May;83(5):853-63. doi: 10.1002/jmv.21993. PMID: 21412794.
2. https://www.bag.admin.ch/de/fruehsommer-meningoenzephalitis-fsme#FSME---Impfempfehlung (Status as of April 09 2026).
3. Zens KD, Altpeter E, Wymann MN, Mack A, Baer NB, Haile SR, Steffen R, Fehr JS, Lang P. A combined cross-sectional analysis and case-control study evaluating tick-borne encephalitis vaccination coverage, disease and vaccine effectiveness in children and adolescents, Switzerland, 2005 to 2022. Euro Surveill. 2024 May;29(18):2300558. doi: 10.2807/1560-7917.ES.2024.29.18.2300558. PMID: 38699900; PMCID: PMC11067431.
4 Schmidt AJ, Altpeter E, Graf S, Steffen R. Tick-borne encephalitis (TBE) in Switzerland: does the prolongation of vaccine booster intervals result in an increased risk of breakthroughs? J Travel Med. 2022 Mar 21;29(2):taab158. doi: 10.1093/jtm/taab158. PMID: 34581402.
5. Santonja I, stiasny K, Essl A, Heinz F, Kundi M, Holzmann H. Tick-Borne Encephalitis iin Vaccinated Patients: A Retrospective Case-Control Study and Analysis of Vaccination Field Effectiveness in Austria From 200 to 2018. J Infect Dis. 2023 Feb 14;227(4):512-521. doi: 10.1093/infdis/jiac075.

When tuberculosis goes beyond the lungs: a pediatric case of constrictive pericarditis, musculoskeletal and abdominal involvement

Figliomeni C.[1], Proserpio M.[1], Valsangiacomo Buechel E.[2], Beltrani V.[3], Leoni-Foglia C.[1], Meyer D.[2], Di Benedetto C.[4], Kottanattu L.[1]
[1]Institute of Pediatric of Southern Switzerland, EOC, Bellinzona; [2]Department of Pediatric Cardiology, University Children's Hospital Zurich; [3]Department of Cardiology, Istituto Cardiocentro Ticino, Lugano; [4]Department of Infectious Diseases, Mendrisio Regional Hospital, EOC

Background

Tuberculosis (TB) is an infectious disease caused by the bacillus Mycobacterium tuberculosis (MTB)



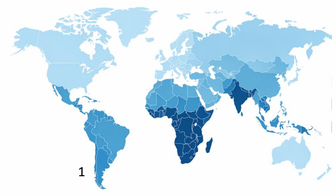
1

It initially affects the lungs and can spread to multiple organ systems

1

Cardiac, musculoskeletal, abdominal involvement are uncommon in immunocompetent pediatric patients

TB affects 10.8 million people worldwide, including 1.3 million children



1

Case description

- 15-year-old male
- Originally from Eritrea
- Chronic cough
- Intermittent dyspnea
- Night sweats
- Fatigue
- Swelling of the right elbow

1

Pleural-pulmonary

Clinical examination

- Reduced right chest expansion, diminished right-VM, tenderness over posterior 7th – 9th ribs

Imaging

- Chest X-ray
- Pleural US
- Chest CT scan

Microbiology

- IGRA test +
- Sputum GeneXpert MTB +
- Sputum MTB cultures +

Treatment

- Isoniazid, rifampicin, pyrazinamide, ethambutol (2 months)
- Isoniazid, rifampicin (12 months)

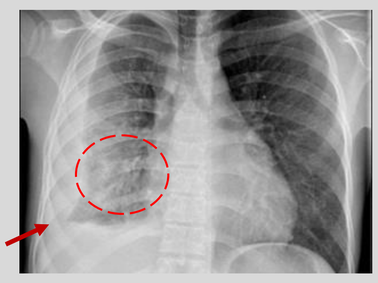
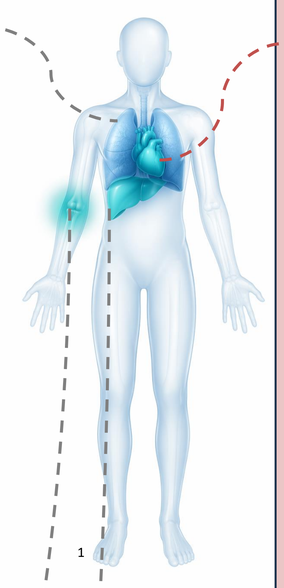


Image 1: Chest X-ray
Pulmonary consolidations, right-sided pleural effusion extended to lung apex



1

Musculoskeletal

Clinical examination

- Painful soft tissue swelling over the right medial epicondyle, functional impairment

Imaging

- Elbow US and MRI

Microbiology

- Pus PCR MTB +
- Pus MTB cultures +

Treatment

- Elbow arthrocentesis
- Tuberculostatic treatment

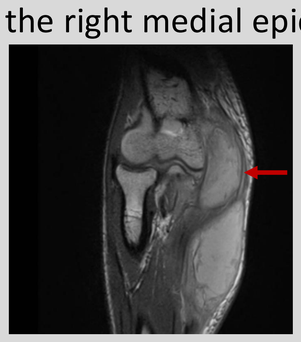


Image 5: Elbow MRI
Intramuscular abscesses, intra-articular fistulization

Abdominal

Clinical examination

- Right upper quadrant tenderness
- Icteric sclerae

Findings

- Cholestatic hepatopathy
- Exocrine pancreatic insufficiency

Treatment

- Pancreatic enzymes
- Fat-soluble vitamins

Cardiac

Clinical examination

- Persistent tachycardia, asymmetric thoracic expansion

Imaging

- Chest CT scan
- Transthoracic echocardiography
- Cardiac MRI

Treatment

- Corticosteroid therapy
- Tuberculostatic treatment

Outcome

- EF LV from 45% → 55%
- EF RV from 43% → 47%

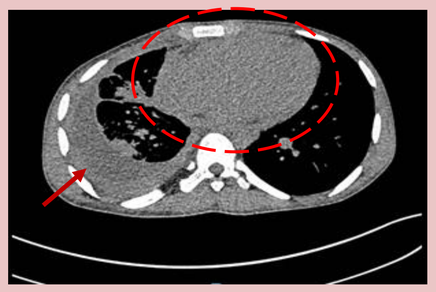


Image 2: Chest CT
Right pleural effusion partially septated, pericardial effusion

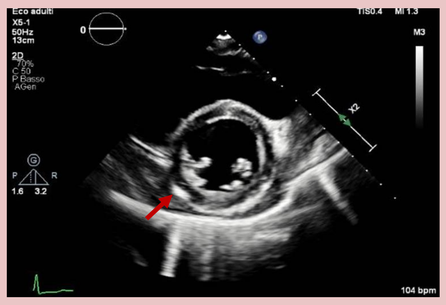


Image 3: Transthoracic echocardiography
Constrictive pericarditis
EF 41-46%

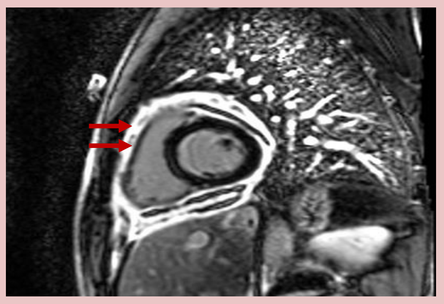


Image 4: Cardiac MRI
Thickening of the pericardium, ventricular interdependence, no calcifications, slight right pleural effusion

Key Learning Points

- Maintain **high clinical suspicion for tuberculous pericarditis**, regardless of symptom severity
- **In the absence of calcification, conservative management may be effective** for inflammatory constriction avoiding high-risk pericardiectomy

"1" Conceptual visuals created with AI-generative tools.

Kingella kingae endocarditis complicated by embolic stroke and cerebral edema requiring decompressive craniectomy in a 9-month-old child

Tolsa L.[1] · Fougère Y.[2] · Lava S.A.G.[3] · Jacquier D.[4] · Armengaud J-B.[1] · Ballester M.[1]

[1] General Paediatrics · [2] Paediatric Infectiology · [3] Paediatric Cardiology · [4] Paediatric Neurorehabilitation
Centre Hospitalier Universitaire Vaudois (CHUV), Lausanne, Switzerland

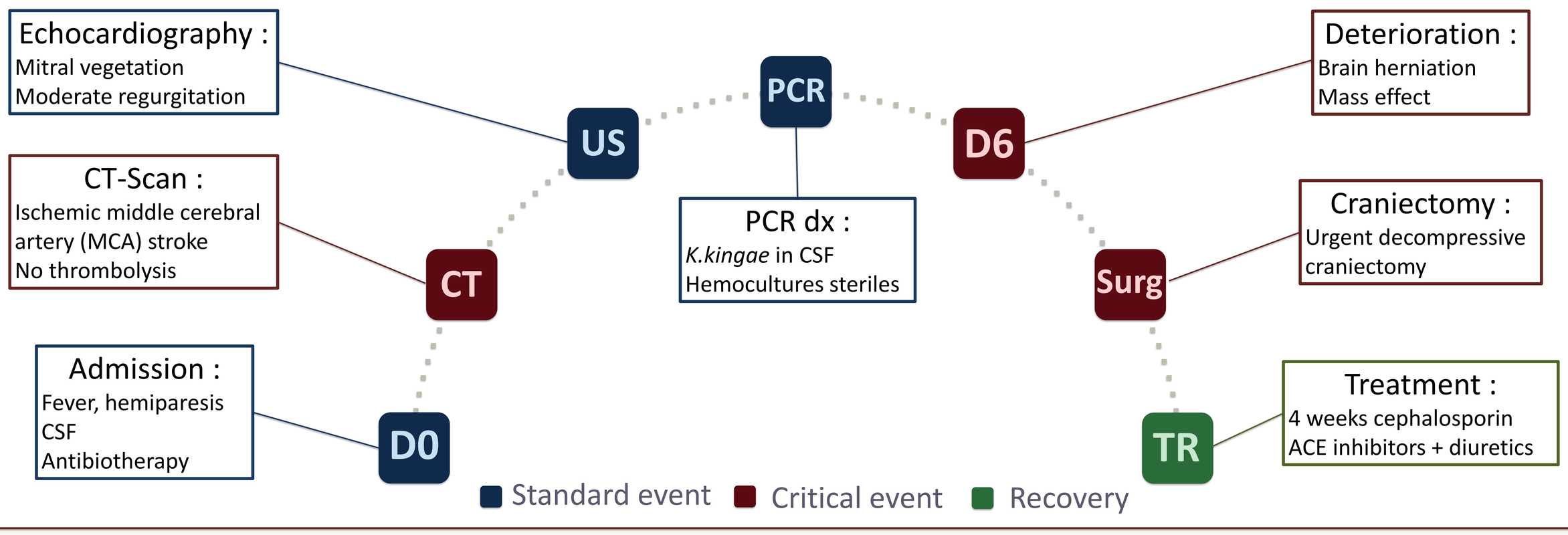
INTRODUCTION

- *K. kingae* primarily affects children aged 6–48 months
- Typically causes osteoarticular infections
- Endocarditis is a recognized but rare manifestation
- Embolic stroke secondary to *K. kingae* is rarely reported in infants
- This case illustrates a life-threatening cardioembolic complication after *K. kingae*

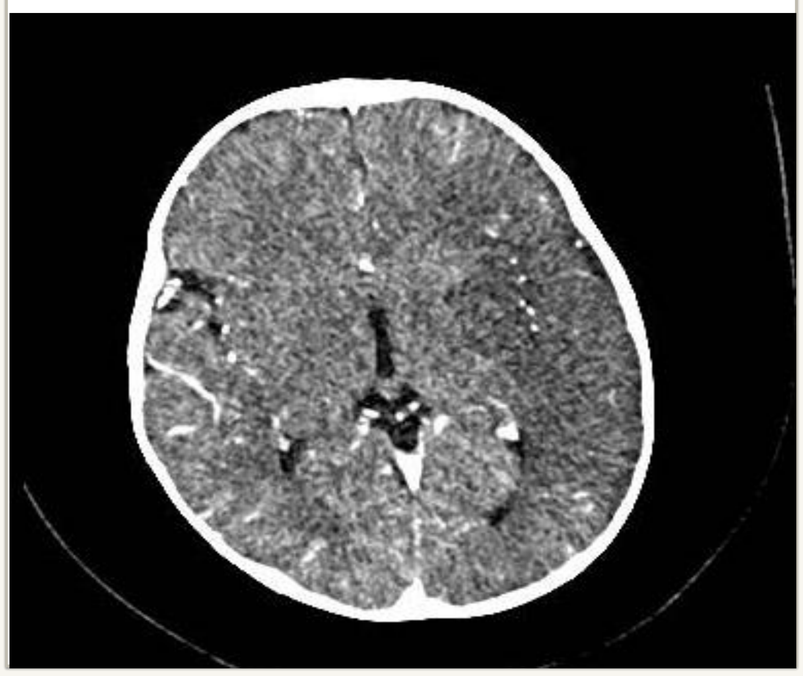
INITIAL PRESENTATION

- 9-month-old, previously healthy child with fever and general deterioration
- Right hemiparesis on examination and suspicion of right hemineglect
- Meningitis initially suspected → CSF collected
- Empirical therapy: cefotaxime, metronidazole, dexamethasone

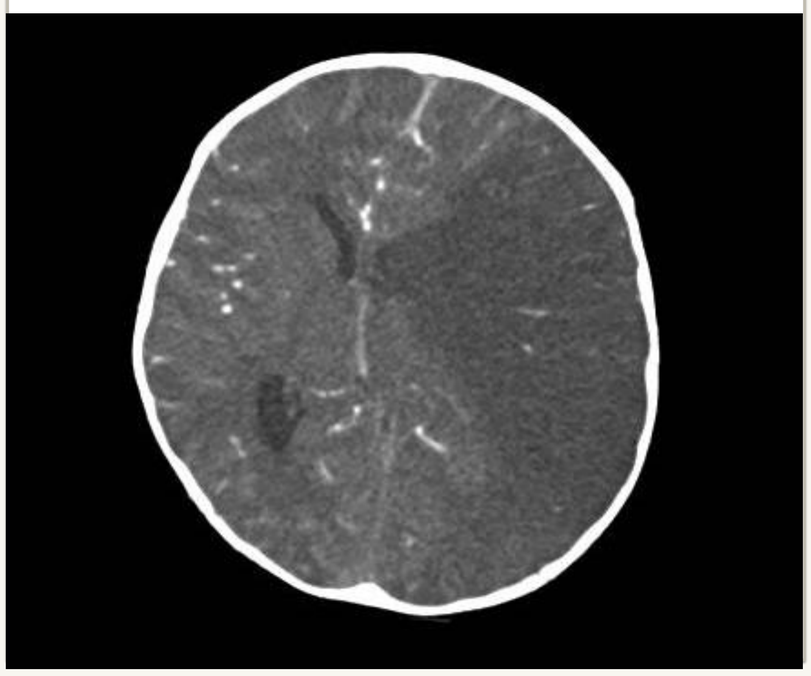
CLINICAL TIMELINE



CT-SCAN — ISCHEMIC MCA STROKE



CT-SCAN — BRAIN HERNIATION (J6)



DIAGNOSTIC WORKUP

KEY FINDING

- CT-scan: ischemic left MCA stroke with thrombosis
- Echo: mitral vegetation + moderate regurgitation
- PCR in CSF: *K. kingae* detected
- Blood cultures: sterile (collected post-antibiotics)
- PET CT-scan: no osteoarticular damage

COMPLICATIONS

CRITICAL

- Left MCA embolic stroke — no thrombolysis
- Progressive neurological deterioration
- Left posterior cerebral artery stenosis on D6 CT
- Ischemic zone expansion with mass effect
- Signs of brain herniation → urgent decompressive craniectomy

OUTCOME

FOLLOW-UP

- Neurological improvement with rehabilitation
- Persistent right arm hemiparesis
- Probable right homonymous hemianopsia
- Echo: moderate mitral regurgitation with normal LV dimensions and systolic function

CONCLUSION & KEY MESSAGES

This case highlights the importance of clinical suspicion for *K. kingae* in young children with invasive infections. Despite detection only in cerebrospinal fluid, this remains the most probable cause of endocarditis. Early recognition, antibiotherapy, and prompt neurosurgical intervention were crucial for patient survival. Cardioembolic complications — including life-threatening cerebral edema — must be anticipated. PCR on CSF can be essential when blood cultures are uninformative.

Common symptoms, uncommon diagnosis

Rogano da Fonseca F, Zgraggen L, Kottanattu L
Istituto Pediatrico della Svizzera Italiana, EOC, Bellinzona, Switzerland

BACKGROUND

- Acute abdominal pain is a very common pediatric symptom, accounting for 5-10% of ER visits
- Abdominal tuberculosis = 6th most common form of extrapulmonary TB
- Presents with non-specific gastrointestinal symptoms
- Frequently mimics other conditions (e.g. lymphoma, IBD) ➡ Risk of delayed diagnosis and complications

CASE PRESENTATION

From abdominal pain to abdominal Tuberculosis

14-year-old male
Origin: Somalia
Living: Switzerland for 1 year

Symptoms:
- Acute severe abdominal pain (upper quadrants)
- Vomiting and anorexia

Clinical findings:
- Hypotension (84/54mmHg)
- Moderate dehydration
- Palpable, painless mass in RUQ

DIAGNOSTIC TIMELINE

12.12.25 → 15.12.25 → 19.12.25 → 23.12.25

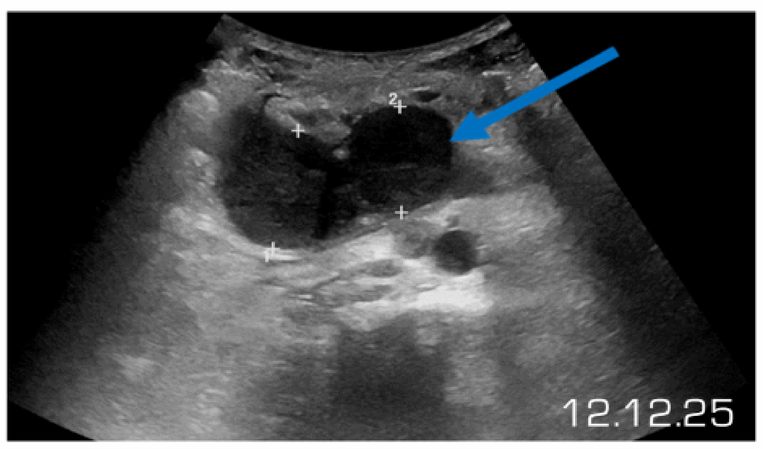
ER → Ultrasound → Lymphoma? → MRI → Laparoscopy Biopsy → Positive PCR M. tuberculosis complex → Treatment

Laboratory:
- CRP: 100mg/l
- Microcytic anemia and leukopenia

Imaging
- Abdominal US and MRI: multiple enlarged lymphnodes
- Thorax X-ray: normal

Microbiology
- IGRA Test: positive
- Lymphnode and intraabdominal fluid: PCR and culture positive for M. tubercolosis complex
- Urine: PCR and culture negative for M. tubercolosis complex

Histopathology
- Necrotizing granulomatous lymphadenitis



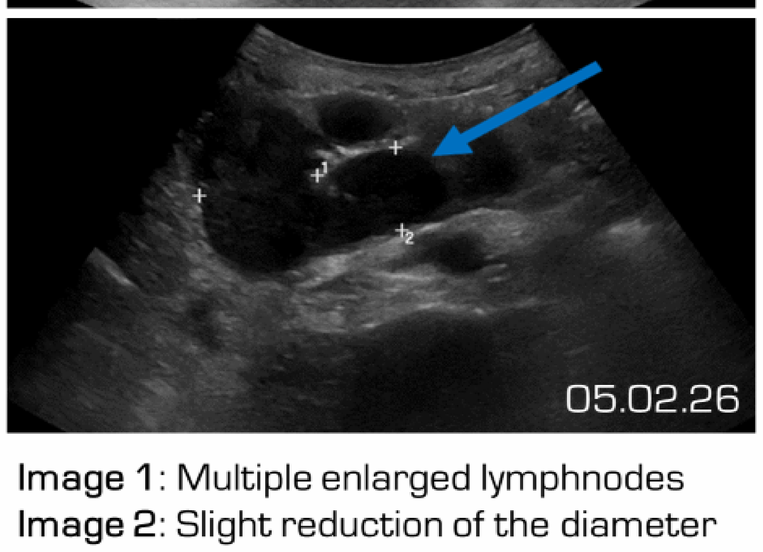


Image 1: Multiple enlarged lymphnodes
Image 2: Slight reduction of the diameter of lymphnodes

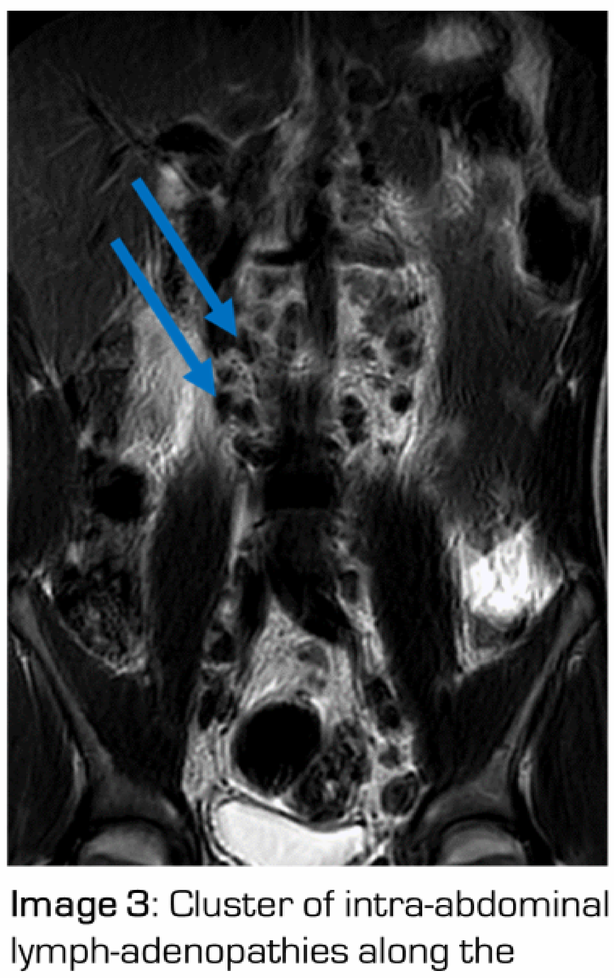


Image 3: Cluster of intra-abdominal lymph-adenopathies along the aorto-iliac axis

TREATMENT

Isoniazide, Rifampicin, Pyrazinamide + Vitamine B6

TAKE HOME MESSAGE

- Consider abdominal TB in the DD of abdominal pain with lymphadenopathy
- Early recognition and timely treatment are crucial

The “Upside Down” of Pediatric Tuberculosis: Paradoxical Reaction — A Case Report

Ravida D.[1], Blanchon S. [1] , Tenisch E.[2], Fougère Y. [3], Rochat I.[1]

[1] Paediatric Pulmonology & Cystic Fibrosis Unit, Dept. Femme Mère Enfant – CHUV, Lausanne | [2] Radiodiagnostics & Interventional Radiology – CHUV, Lausanne | [3] Unité d’infectiologie et vaccinologie pédiatrique, Servi de pédiatrie – CHUV, Lausanne

CLINICAL TIMELINE

- **5 weeks before admission**: Cough, wheezing, febrile episodes
- Delayed initiation of isoniazid prophylaxis with suboptimal adherence.
- **Admission**: CXR: 19/09/2025. PCR on gastric aspirate positive for *Mycobacterium tuberculosis*
- Triple oral aTB therapy
- **2 months of treatment**: Clinical deterioration. CXR: increased mediastinal lymphadenopathy
- **Bronchoscopy**: obstructive left endobronchial granulomatous lesion, control cultures negative.
- Prolongation triple aTB therapy for 4 weeks. Systemic corticosteroids for presumed PR
- Clinical and radiological improvement within 2 weeks
- Complete recovery after 4 weeks

BACKGROUND & CASE

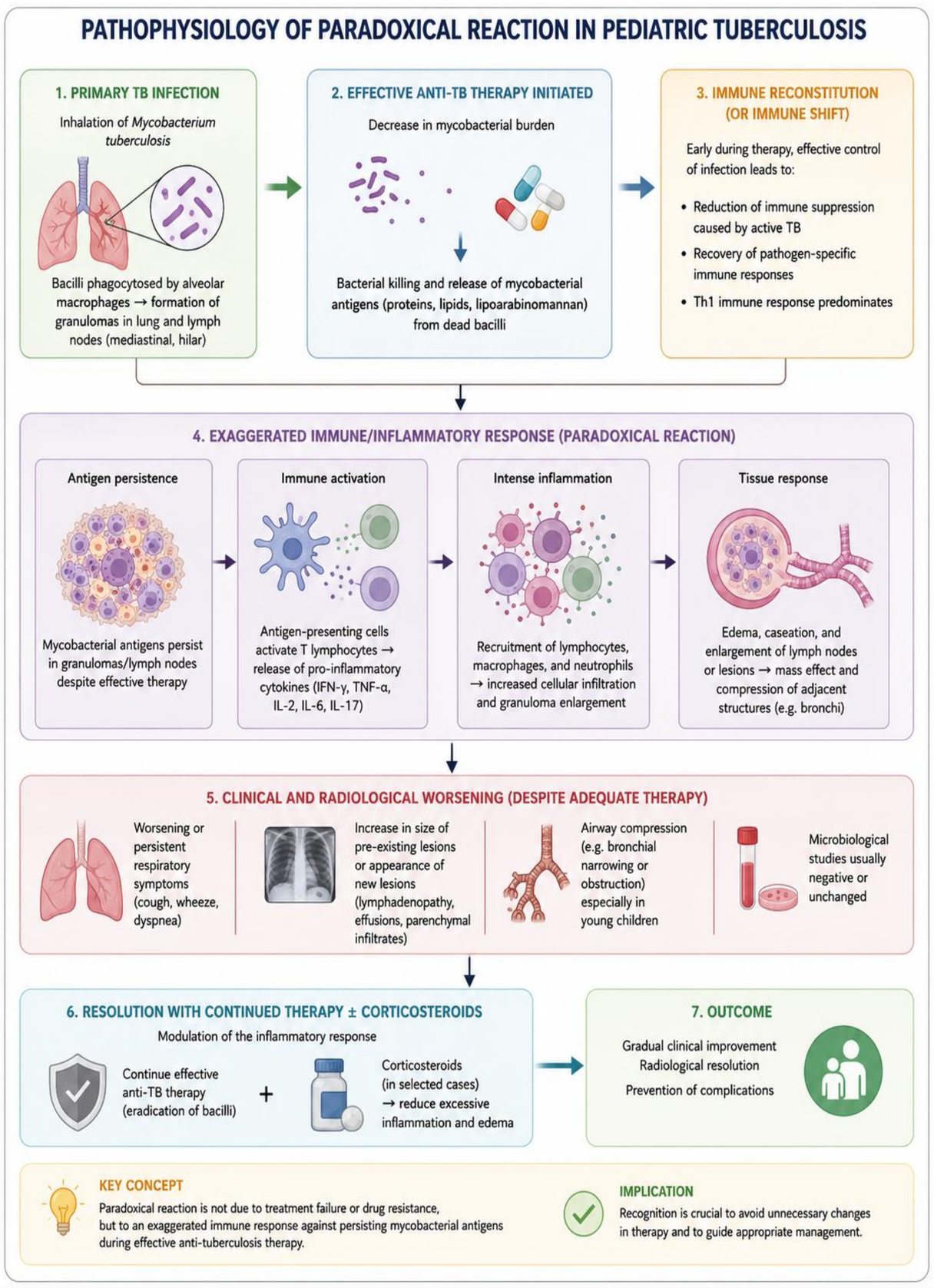
Patient — 2 yo male

A 2-year-old boy admitted for suspected pulmonary tuberculosis after several weeks of intermittent productive cough, wheezing unresponsive to bronchodilators + inhaled corticosteroids, and recurrent low-grade fever.

- **recent household exposure to a case of active tuberculosis**
- delayed isoniazid prophylaxis and suboptimal adherence due to frequent vomiting
- initial investigations:
  - neutrophilic leukocytosis (11.2 G/L), CRP 11 mg/L
  - bilateral mediastinal lymphadenopathy on chest X-ray
  - positive PCR for *Mycobacterium tuberculosis* on gastric aspirate

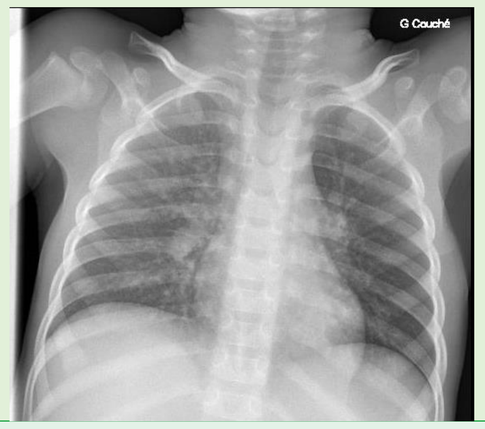
→ confirmed **pulmonary tuberculosis**
→ initiation of triple oral antituberculous therapy (isoniazid, rifampicin, pyrazinamide)
+ pyridoxine supplementation and directly observed therapy (DOT)

Despite confirmed treatment adherence, progressive respiratory symptoms after 2 months of therapy. CXR demonstrated increasing mediastinal lymphadenopathy with **suspected left bronchial compression**. Bronchoscopy revealed a **partially obstructive endobronchial granulomatous lesion**, while control cultures remained negative.



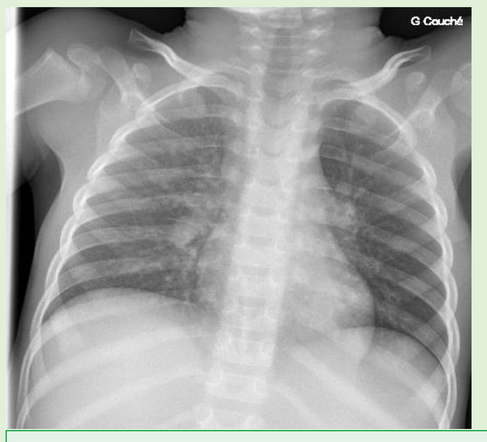
RADIOLOGICAL FINDINGS — Key Diagnostic Evidence

Chest X-Ray on admission (19/09/2025)



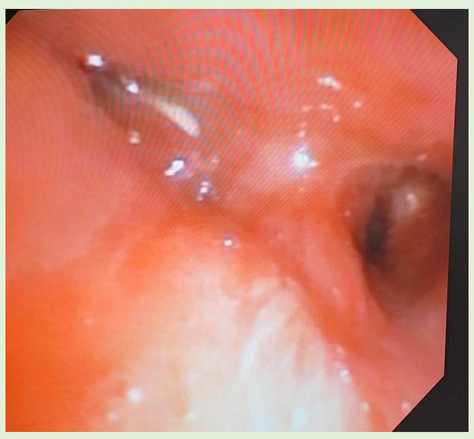
Increased bilateral hilar adenopathies, micronodular right lung and left lower lobe infiltrate

Chest X-Ray (20/10/2025)



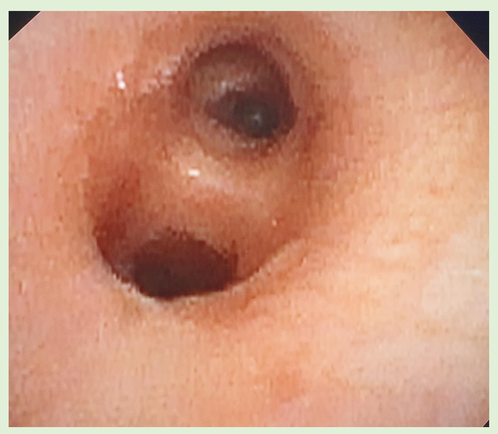
New left lower lobe air bronchogram – persistant bilateral hilar adenopathies and right micronodular infiltrate

First Bronchoscopy



obstructive left endobronchial granulomatous lesion

Recovery Bronchoscopy



Complete recovery

DISCUSSION

Recognition of paradoxical reaction (PR) is essential to:

- avoid unnecessary invasive procedures
- prevent inappropriate escalation or modification of aTB therapy
- distinguish PR from drug resistance or poor adherence.

Multidisciplinary collaboration between pulmonology, infectious diseases, and radiology teams is crucial for optimal management of tuberculosis in children.

Differential Diagnosis:

PD is a diagnosis of exclusion and requires thorough evaluation to rule out:

- treatment failure or drug resistance
- other opportunistic infections
- poor treatment adherence
- drug malabsorption

Confirmation requires evidence of negative mycobacterial cultures and exclusion of drug resistance through susceptibility testing.

Prognosis

Most paradoxical reactions are self-limiting, with an average duration of 2–3 months, although manifestations may persist for several months in some cases.
Mortality is rare in immunocompetent patients; potentially life-threatening complications (expanding cerebral tuberculomas, respiratory failure, cardiac tamponade, airway obstruction…) can occur.

CONCLUSION

Diagnosis

Paradoxical reaction (PR) should be considered in children presenting with clinical or radiological worsening during apparently effective antituberculous therapy. Mediastinal lymph node enlargement may lead to significant airway compression and mimic treatment failure or disease progression.

Confirm the diagnosis and keep calm

Confirm negative mycobacterial cultures, exclude drug resistance
Do not change antituberculous therapy and avoid unnecessary additional investigations.

Therapeutic Management

Continuation of antituberculous therapy
Prednisone 1.5 mg/kg/day for 2 weeks, followed by 0.75 mg/kg/day for 2 weeks.
Multidisciplinary follow-up is essential to ensure appropriate management

REFERENCES

1. Immune Reconstitution Disease Associated With Mycobacterial Infections in HIV-infected Individuals Receiving Antiretrovirals. The Lancet. Infectious Diseases. 2005. Lawn SD, Bekker LG, Miller RF.ReviewLee Y. Swyer-James-MacLeod Syndrome. StatPearls. StatPearls Publishing; 2025.

2. Official American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis**.** Clinical Infectious Diseases : An Official Publication of the Infectious Diseases Society of America. 2016. Nahid P, Dorman SE, Alipanah N, et al.

3. Determinants of Treatment-Related Paradoxical Reactions During Anti-Tuberculosis Therapy: A Case Control Study. BMC Infectious Diseases. 2016. Brown CS, Smith CJ, Breen RA, et al.

4. Post-Tuberculosis Treatment Paradoxical Reactions. Infection. 2024. Hermans SM, Akkerman OW, Meintjes G, Grobusch MP.

5. A Clinical Practice Guideline for Tuberculous Meningitis. The Lancet. Infectious Diseases. 2026. Donovan J, Cresswell FV, Tucker EW, et al.

Peripheral Facial Palsy and Headache: A Pediatric Case of Lyme Neuroborreliosis

Diamanti Gabriele, Brandle Gabriel, Ferraz Céline
Department of pediatrics; GHOL, Nyon

An 8-year-old girl presented with a **right peripheral facial palsy** associated with **persistent frontal headaches** evolving for two weeks, asthenia, and subfebrile state.
Tick bite 5 months prior to the symptoms onset without erythema migrans or arthralgia.
Neurological examination: **complete right peripheral facial palsy**, positive Bell's sign. No meningeal signs or other focal neurological deficits were observed.

Fig.1 :Initial presentation of facial palsy

Blood tests

- Borrelia IgM: negative (<0.20 S/CO)
- Borrelia IgG: positive (0.56 S/CO)
- HHV serologies: negative
- Borrelia Immunoblot : IgM and IgG both negative

Cerebrospinal fluid

- 236 WBC/µL, <1 RBC/ µL
- 990 mg/L of proteins, 5.1 mmol/L of glucose
- Multiplex meningitis/ encephalitis PCR: negative for all tested pathogens
- Elevated CSF IgM (>190 UA/ml) and IgG (172.4 UA/ml) by CLIA,
- Markedly increased CSF CXCL13 (>800 pg/mL).

These findings confirmed Lyme neuroborreliosis

Treatment

- 4 days of 100mg/kg/day (2g/day) of IV Ceftriaxone
- Switch by Doxycycline 2mg/kg/dose 2 times a day for 21 days

Follow-up

A rapid clinical improvement was observed followed by complete recovery at the end of the antibiotic therapy

Fig.2 : Early clinical recovery after intravenous ceftriaxone treatment

Background (1-3)

- Lyme neuroborreliosis (LNB) occurs in 10–15% of Lyme borreliosis cases in Europe.
- Pediatric most common presentation:
  - Peripheral facial nerve palsy
  - Lymphocytic meningitis

The Role of CXCL13 in neuroborreliosis diagnostic (4-6)

- **Early and accurate biomarker:** CSF CXCL13 rises earlier than intrathecal anti-Borrelia antibodies and may remain positive even when conventional serology is negative or inconclusive.
- **High diagnostic performance:** Studies reported sensitivities up to 100% and specificities between 97–99% for pediatric Lyme neuroborreliosis.
- **Clinical relevance:** Elevated CSF CXCL13 levels are consistently associated with pediatric LNB presenting with facial palsy and lymphocytic meningitis.
- **Combined diagnostic approach:** Association of CXCL13 with Borrelia-specific antibodies and IgM CSF/serum index achieved 100% diagnostic sensitivity in pediatric cohorts

Discussion

Peripheral facial palsy associated with headaches should raise suspicion for pediatric Lyme neuroborreliosis.
Negative serum IgM does not exclude active infection. CSF analysis remains essential, and CXCL13 may represent a useful early diagnostic biomarker.

1.Mygland A, et al. EFNS guidelines. Eur J Neurol. 2010.
2.Christen HJ. Lyme neuroborreliosis in children.
3.Skogman BH, et al. Pediatr Infect Dis J.
4.Gudowska-Sawczuk M et al. Chemokine Ligand 13 (CXCL13) in Neuroborreliosis and Neurosyphilis as Selected Spirochetal Neurological Diseases: A Review of Its Diagnostic Significance. Int J Mol Sci. 2020;21(8)
5.Jung L et al. Elevated Cerebrospinal Fluid CXCL13 Is a Helpful Marker for the Early Diagnosis of Neuroborreliosis in Children. Pediatr Infect Dis J. 2025;44(6):577-81.
6.Sillanpää H et al. Cerebrospinal fluid chemokine CXCL13 in the diagnosis of neuroborreliosis in children. Scand J Infect Dis. 2013;45(7):526-30.