

# AN UNUSUAL COMPLICATION AFTER DENTAL PROCEDURE PROPHYLAXIS

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## Background

- Amoxicillin is the first choice for dental procedure prophylaxis.
- Adverse effects of amoxicillin range from gastrointestinal upset to allergic reactions including rash and anaphylaxis, to *Clostridium difficile* colitis.
- A rare side-effect is drug induced meningitis.
- We present a case of meningitis after amoxicillin use for dental prophylaxis.

## Case Presentation

- Patient is a 60-year old man presented with fever, altered mental status, and agitation.
- Amoxicillin was taken for dental prophylaxis 4 days prior to admission (PTA) and developed mild agitation. He took amoxicillin 3 days later, had the procedure on the day of admission.
- Patient became symptomatic 12 hours after procedure
- He presented to ER and LP was performed
- Empiric antibiotics, including ampicillin were started.
- Patient's mental status worsened, fevers persisted. MRI was negative.
- Infectious Disease (ID) consult service stopped all antibiotics when cultures were negative.
- He improved slowly over time.
- Upon further questioning, he had two prior episodes of meningitis in 2011, and 2015, each occurring after amoxicillin prophylaxis for dental procedures. CSF in both episodes had lymphocytic pleocytosis consistent with aseptic meningitis.
- Patient was advised to use Clindamycin in future if needed.

## Case Summary

	2011	2015	2017		
			6 weeks PTA	Hospital admit	
<b>Timing of amoxicillin and dental work</b>	1 day after	1 day prior	1 day prior	4 days prior	1 day prior
<b>Symptom onset after amoxicillin</b>	Few days	6 days	Next day	Next day	12 hours
<b>Presenting symptoms</b>	Severe headache Petechial rash	Severe headache	Mild agitation and headache	Mild agitation and headache	Fever, headache, agitation, neck pain
<b>Result</b>	Hospital admission	LP and hospital admission	Urgent Care visit	none	LP and hospital admission
<b>Antibiotics</b>	2 weeks of ceftriaxone	Antibiotics stopped by ID	none	none	Antibiotics stopped by ID

## CSF Analysis

	2011	2015	2017
Nucleated cells	39	141	113
% Granulocytes	2	2	10
% Lymphocytes	45	94	28
% Monocytes	42	3	62
Glucose	62	60	71
Protein	58	111	98
RBC	2	2	0
HSV-1 and 2 PCR	negative	negative	negative
culture	No growth (NG)	NG	NG

## Discussion

- Based on history, there was no indication for dental prophylaxis.
- Aseptic meningitis has multiple infectious and non infectious etiologies including drugs, malignancy, and autoimmune diseases (1).
- Amoxicillin induced aseptic meningitis (AIAM) is a rare adverse reaction with 12 reported cases.
- Amoxicillin-induced aseptic meningitis (AIAM) is an extremely rare adverse reaction with only 12 reported cases. Since the exact pathogenesis is still unknown and clinical signs and cerebrospinal fluid (CSF) findings vary greatly, AIAM is usually a diagnosis of exclusion (2)
- Given that amoxicillin was administered prior to each episode of meningitis in our patient, amoxicillin is the causative agent in each case.
- We suspect that he worsened after admission because of empiric ampicillin use for *Listeria* coverage.

## Conclusions

- Due to widespread and common use of amoxicillin, clinicians should be aware of this rare side effect of amoxicillin.
- Appropriate use of dental prophylaxis is imperative to minimize unnecessary antibiotic use.
- Thorough history is key for diagnosis.

## References

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2. Turk VE, Šimić I, Makar-Aušperger K, Radačić-Aumiler M. Amoxicillin-induced aseptic meningitis: case report and review of published cases. Int J Clin Pharmacol Ther. 2016. 54(9):716-8. doi: 10.5414/CP202645.0