INTRODUCTION

- *Fusobacterium nucleatum* is an anaerobic, non-spore forming, gram-negative bacilli commonly found in soil, respiratory tracts of animals, and oropharynx of healthy populations.
- Dental plaque infections with *Fusobacterium* spp. are more common in adolescents and may lead to periodontal disease.
- *Fusobacterium* spp. are capable of causing invasive disease commonly associated with otitis media, tonsillitis with Lemierre syndrome, gingivitis, and oropharyngeal trauma.

![Image of *F. nucleatum* after culture](image1)

Figure 1: *Fusobacterium nucleatum* after being cultured in liquid thioglycollate medium

CASE DESCRIPTION

DIFFERENTIAL DIAGNOSIS

Meningitis caused by bacterial, viral, fungal, or parasitic organisms.

PERTINENT STUDIES

CSF: WBC 18,440 with 91% neutrophils
RBC 1,260, Glucose 34, Protein 222
No growth in pre-treated culture.

MRI Brain:

- Numerous ring-enhancing lesions concerning for multiple cerebral abscesses versus Neurocysticercosis.
- Imaging inconsistent with Neurocysticercosis as reviewed by national experts.

Negative Serum serology for Neurocysticercosis
Normal Fungal and Immune studies.

CSF 16s PCR Analysis: *Fusobacterium nucleatum*

FINAL DIAGNOSIS

Cerebral abscesses caused by *Fusobacterium nucleatum*.

TREATMENT

- Triple antibiotic therapy with ceftriaxone, vancomycin, and metronidazole for 8 weeks
- Repeat MRI Brain during and after antibiotic therapy

DISCUSSION & REVIEW

- Dissemination of the organism to the brain was likely caused by underlying periodontal disease secondary to patient’s poor oral hygiene.
- Repeat CSF analysis: Significant improvement in pleocytosis (WBC 169)
- Repeat MRI Brain: Decreased size of ring-enhancing lesions. No new lesions identified.
- There is very limited data available to identify the role of *Fusobacterium* spp. in dissemination to the brain.

![Image of MRI Brain with ring-enhancing lesions](image2)

CASE PRESENTATION

- 16-year-old, previously healthy male, with dental braces and poor oral hygiene
- Three day history of non-specific symptoms of fever, chest pain, and lower back pain.
- Acute development of headache, neck pain, and vomiting.

REFERENCES


CONCLUSION

Due to this uncommon cause of brain abscesses, *F. nucleatum*’s role in causing disseminated disease in healthy populations should be further investigated.