We present a case of a young woman with mastoiditis. She was tachycardic, febrile, and had leukocytosis 26.1 K. A month after antibiotic treatment, the patient developed a defect in the mastoid air cells, along with labyrinthitis. Exam findings indicated right seventh cranial nerve palsies. Auditory canal CT showed right mastoiditis, with mastoidectomy and tube placement.

Recent studies reveal rising cases of GAS infections such as mastoiditis, pneumonia, and osteomyelitis. GAS is a rare cause of acute bacterial meningitis (<0.2% of cases). We present a case of a young woman displaying right mastoiditis, meningitis, and ventriculitis due to GAS infection.

A previously healthy 35-year-old woman presented due to a two-week duration of a sore throat, a right ear infection, and a two-day decline in mental status. She was tachycardic, febrile, and had leukocytosis 26.1 K.

Exam findings indicated right seventh and bilateral sixth cranial nerve palsies. Brain MRI showed right mastoiditis and skull base osteomyelitis—no cerebritis or cerebral abscess. She underwent mastoidectomy and tube placement.

CSF analysis indicated bacterial meningitis but with 2000 WBC. Vancomycin, cefepime, and steroids were started. Blood and OR cultures returned positive for GAS.

A month after discharge, she complained of dizziness and gait instability on a follow-up visit. Brain MRI showed an extension of the right sided mastoiditis along right internal auditory canal and right facial nerve, along with labyrinthitis.

This combination of sixth and seventh cranial nerve involvement secondary to meningitis related to complicated ear infection is extremely unusual.

Our patient did not display any meningeal signs, however, despite treatment, her infection progressed from mastoiditis to ventriculitis to labyrinthitis.

The reason for our patient's complications was due to a delay in seeking medical attention.

Ear infections need to be treated early and aggressively, especially if there is mastoid involvement to avoid potential CNS complications.

REFERENCES

BACKGROUND
• Group A Streptococci (GAS), or Streptococcus pyogenes, is a Gram-positive beta-hemolytic bacterium historically linked to acute pharyngitis, rheumatic fever, and skin and soft tissue infections.
• Recent studies reveal rising cases of GAS infections such as mastoiditis, pneumonia, and osteomyelitis. GAS is a rare cause of acute bacterial meningitis (<0.2% of cases).
• We present a case of a young woman displaying right mastoiditis, meningitis, and ventriculitis due to GAS infection.

CASE SUMMARY
• A previously healthy 35-year-old woman presented due to a two-week duration of a sore throat, a right ear infection, and a two-day decline in mental status.
• She was tachycardic, febrile, and had leukocytosis 26.1 K.
• Exam findings indicated right seventh and bilateral sixth cranial nerve palsies.
• Brain MRI showed right mastoiditis and skull base osteomyelitis—no cerebritis or cerebral abscess.
• She underwent mastoidectomy and tube placement.

Figure 1: Enhancement of the mastoid air cells (arrow) consistent with mastoiditis.
Figure 2: Pachymeningeal thickening and avid enhancement (arrows) consistent with pachymeningitis. Increased enhancement of the left orbital retrobulbar fat (arrowheads) is consistent with retrobulbar inflammation.
Figure 3: A collection with marked internal reduced diffusion layering within the left lateral ventricle occipital horn (arrow). This collection represents pus from ventriculitis.
Figure 4: Coronal temporal bone CT imaging shows a focal subtle defect within the tegmen mastoideum (arrow). This defect is the likely site of spread of infection from the mastoid air cells (mastoiditis) to the intracranial contents (meningitis and ventriculitis).

Figure 5: Schematic representation of incidence of group A streptococcal diseases by age using data from epidemiological reports.

DISCUSSION
• In a prospective observational cohort study conducted by MJ, Lucas et al, GAS was identified in 2% (26 of 1322) of patients with community-acquired bacterial meningitis.
• This combination of sixth and seventh cranial nerve involvement secondary to meningitis related to complicated ear infection is extremely unusual.
• Our patient did not display any meningeal signs, however, despite treatment, her infection progressed from mastoiditis to ventriculitis to labyrinthitis.
• The reason for our patient's complications was due to a delay in seeking medical attention.
• Ear infections need to be treated early and aggressively, especially if there is mastoid involvement to avoid potential CNS complications.