Objective
Infection is a severe complication of Ommaya reservoirs. However, data on the clinical presentation and therapeutic approach for such infections are limited. Herein we describe the largest study of the clinical manifestations and treatment outcomes of Ommaya reservoir-related infections.

Methods:
• We retrospectively reviewed the hospital records of all patients at MD Anderson Cancer Center who had an Ommaya reservoir placement between 2001 and 2011.
• We included in our analysis only those patients who developed a definite device-related infectious process:
  1) Local and/or systemic clinical manifestations, and
  2) Microbiological growth from at least one of the following sources: CSF, removed device material, surgical wounds, or a purulent collection in close proximity to the reservoir.

Results
• Among 501 Ommaya reservoir placements, 40 patients (8%) had developed an active device-related infectious process (table 1).
• Of these 40 patients, 28 patients (60%) presented with a meningeal syndrome, 5 patients (12%) presented with only local skin and soft tissue inflammatory signs, while the remaining 7 patients (18%) had developed an overlap of both clinical syndromes (table 2).

Table 1. Characteristics of Patients with Ommaya Reservoir-related Infections.

Table 2. Clinical Manifestations in Patients with Ommaya Reservoir-related Infections.

The majority of these infections occurred soon after the reservoir placement or the last time the device was last accessed (table 3).

Table 3. Device placement and access in relation to infection.

Twenty-one percent of the patients had all cerebrospinal fluid parameters within normal limits - leukocytes, glucose, and protein levels (table 4).

Table 4. Laboratory analysis of patients with Ommaya reservoir infection.

Table 5. Pathogens isolated in Ommaya reservoir-related infections, stratified by time of placement.

Table 6. Treatment and outcomes of Ommaya reservoir-related infections.

Conclusion
• Most Ommaya reservoir-related infections develop soon after device placement or last access.
• As clinical symptoms are usually mild and nonspecific and because CSF parameters may be within normal limits, a high suspicion for infection is required.
• Although mortality rates were similar among all groups (p>0.99), the most cost-effective therapeutic approach was early versus late removal of the reservoir (p<0.038).

References

Contact Information:
Ariel D. Szvalb, MD USAGE@mdanderson.org
Cancer Center Department of Infectious Diseases, Baylor College of Medicine, and Department of Infectious Diseases and Neurosurgery, The University of Texas MD Anderson Cancer Center, Houston, Texas.