

# Eye Infection: What's the Culprit?

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**Case Study:** I.C. is a 76-year-old woman who presented to the emergency room complaining of constipation for four days. During the 24 hours preceding the emergency room visit, I.C. experienced nausea, vomiting, and abdominal pain. Evaluation revealed a mass located in the sigmoid colon, and surgical resection was planned. Prior to surgery, I.C. had a short-term subclavian catheter inserted for fluids, total parenteral nutrition, and correction of electrolytes. A sigmoid colectomy was performed, and pathology confirmed adenocarcinoma stage IIa. I.C. seemed to recover from surgery without complication.

Approximately six weeks after surgery, I.C. developed erythema, purulent drainage, blurred vision, and pain in her eye. After evaluation, I.C. was diagnosed with bacterial conjunctivitis (see Figure 1) and treated appropriately. Initially, the eye infection cleared. However, within 48 hours, the symptoms recurred with increased intensity. Fundusoscopic examination revealed an infection in the internal eye, particularly the retina. I.C. underwent eye surgery for debridement of the infection. Two cultures taken from the eye were positive for *Prevotella melaninogenica* and *Clostridium* species. Appropriate treatment with oral antibiotics and eye drops was administered for three weeks. The infection cleared, and I.C.'s vision returned to baseline.

## Case Discussion

Although I.C.'s eye infection is a unique occurrence, the condition can lead to severe complications. Infections of the eye are rarely reported in the literature, but they usually have an unusual presentation and result in poor visual outcomes. What was the underlying culprit for the eye infection? Could the infection have been prevented? Could the nurse caring for I.C. have provided specific patient education points regarding the unusual infection and what to report to the healthcare provider? Four possible in-



**Figure 1. Bacterial Conjunctivitis**

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fectious sources that could have been the culprit for the eye infection are normal aging, the venous access device (VAD), hematogenous seeding, or intraoperative introduction of the organism.

## Normal Aging

Infection is a common cause of morbidity and mortality in patients with cancer. Infection can occur from sources outside the body (exogenous) or inside the body (endogenous), particularly when patients are compromised from myelosuppression, cancer treatment, or surgery. Older adults are more vulnerable to infection

than younger adults. The immune system undergoes changes with aging, leaving older adults less able to fight infection (Crighton & Puppione, 2006). Age-related changes to the immune system may obscure the presentation of infection. Fever generally is the first symptom of infection, yet in older patients, fever may be low grade or absent. Other signs of infection include inflammation, erythema, warmth, edema, or tenderness.

## Venous Access Device

Another potential source of infection is the VAD. The insertion or exit site serves as an area where organisms can migrate along the external surface of a VAD. The VAD hub provides the means for an organism to travel along the internal surface of the catheter from manual manipulation during routine flushing or drug administration (Greene, 1996). The catheter hub also can become colonized from a patient's skin flora or from organisms on the hands of healthcare providers, resulting in an infection (Dobbins, Catton, Kite, McMahon, & Wilcox, 2003; Rumsey & Richardson, 1995). Contamination of the catheter surface may result

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