

Hoagland sign in infectious mononucleosis

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DESCRIPTION

An East Asian man in his 20s presented with a 10-day history of fever, sore throat, malaise and eyelid swelling. His medical history and medication were unremarkable. He had no history of smoking or alcohol consumption. Physical examination revealed a temperature of 37.5°C, pulse rate of 109 beats/minute, blood pressure of 106/83 mm Hg, respiratory rate of 18 breaths/minute and oxygen saturation of 98% (room air). Tonsillar exudate and bilateral enlarged tender cervical lymphadenopathy were observed, as well as marked bilateral periorbital oedema (figure 1), localised to the eyelids (Hoagland sign). No abnormalities in the thorax, abdomen or extremities were observed. Laboratory tests showed an elevated white cell count ($23.5 \times 10^9/L$) with a significant increase in atypical lymphocytes (8.0% of total white cell count), aspartate aminotransferase (95 U/L) and alanine aminotransferase (419 U/L) levels. Based on these findings, the patient was diagnosed with infectious mononucleosis (IM). Symptoms resolved within a week with symptomatic treatment (figure 2). Additional testing showed that IgM and IgG antibody titres to Epstein-Barr virus (EBV) capsid antigen were elevated, but IgG antibodies to EBV nuclear antigen were negative.

IM is a common acute condition among adolescents and young adults, mostly due to primary EBV infection.¹ After an incubation period of 4–6 weeks, symptoms include fever, pharyngotonsillitis, lymphadenopathy, increased atypical lymphocytes, liver dysfunction and hepatosplenomegaly.¹ Bilateral eyelid swelling characteristic of IM was first described by Hoagland in 1952.² The sign, known as the Hoagland sign, is present in half of IM patients and is useful for diagnosis.^{2,3} It has been reported to be more common in women, and it is characterised by S-shaped swelling of the bilateral upper eyelids.^{4,5} Lacrimal gland inflammation and lymphatic stasis have been suggested as possible causes.⁵ In addition, it appears early stage of the diseases and disappears within 5 days after the onset.² Thus, initial physical examination is important.² Differential diseases of bilateral eyelid swelling are diverse and include angioedema, contact dermatitis, orbital cellulitis, hepatitis B, trichinosis, trypanosomiasis, systemic lupus erythematosus, dermatomyositis, adult Still's disease, Kawasaki disease, malignant lymphoma, drugs, as well as COVID-19 infection and postvaccination, so a careful history and physical examination are important.^{3,5–7}



Figure 1 Bilateral periorbital oedema (Hoagland sign).

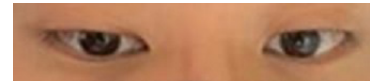


Figure 2 Symptoms resolved within a week with symptomatic treatment.

Learning points

- ▶ Infectious mononucleosis (IM) is a common acute condition among adolescents and young adults, mostly due to primary EBV infection. After an incubation period of 4–6 weeks, symptoms include fever, pharyngotonsillitis, lymphadenopathy, increased atypical lymphocytes, liver dysfunction and hepatosplenomegaly.
- ▶ Bilateral eyelid swelling characteristic of IM was first described by Hoagland in 1952. The sign, known as the Hoagland sign, is present in half of IM patients and is useful for diagnosis. It is characterised by S-shaped swelling of the bilateral upper eyelids.
- ▶ Differential diseases of bilateral eyelid swelling are diverse, so a careful history and physical examination are important. Even in the COVID-19 era, the Hoagland sign may help the differential diagnosis of acute fever among young adults.

In conclusion, even in the COVID-19 era, the Hoagland sign may help the differential diagnosis of acute fever among young adults.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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