Mumps Virus–associated Hemophagocytic Syndrome

To the Editor: Virus-associated hemophagocytic syndrome (VAHS) is a fulminant disorder associated with systemic viral infection and is characterized pathologically by the proliferation of hemophagocytic histiocytes in the lymphoreticular tissues. Here we report a case of mumps VAHS following parotitis and pancreatitis.

A 39-year-old, previously healthy woman sought treatment for abdominal pain on June 14, 2002. On physical examination, her bilateral parotid glands were swollen, and her left upper quadrant was tender. Laboratory studies showed a leukocyte count of 4,640/mm³, a hemoglobin concentration of 10.9 g/dL, and a platelet count of 9.1 × 10⁴/mm³. The level of amylose was elevated in her blood (1,613 IU/L; normal 50–160 IU/L) and urine (12,940 IU/L; normal 200–1,100 IU/L). Her level of pancreatic enzymes was also elevated: lipase level was 194 IU/L (normal 7–60 IU/L) and phospholipase A2 level was 1,340 ng/dL (normal 130–400 ng/dL). Parotitis and acute pancreatitis due to a mumps virus infection were diagnosed. After supportive therapy, the laboratory abnormalities improved.

On July 1, the patient’s temperature suddenly rose to 39°C. At that time, pancytopenia was evident, with a leukocyte count of 2,350/mm³, a hemoglobin concentration of 10.9 g/dL, and a platelet count of 9.1 × 10⁴/mm³. Laboratory studies showed an elevation of lactic dehydrogenase (1,403 IU/L; normal 180–460 IU/L), ferritin (12,727.0 ng/mL; normal 4.0–64.2 ng/mL), and soluble interleukin-2 receptors (1,660 U/mL; normal 145–519 U/mL). Hypercytokinemia was also shown, with an interleukin-6 of 12.7 pg/mL (normal <3.1 pg/mL). Her bone marrow was normocellular, and an increased number of histiocytes with hemophagocytosis was found. Extensive cultures and serologic studies for microbial and viral infections were all negative, whereas tests for immunoglobulin G and immunoglobulin M antibodies against the mumps virus were both positive. Mumps VAHS was diagnosed. Treatment with corticosteroids led to a complete remission of symptoms.

VAHS was initially reported by Risdall et al. in 1979 (1). Although the precise pathogenesis of VAHS remains unknown, current hypotheses focus on the roles played by activated cytokines. VAHS has been reported in connection with a variety of viruses: adenovirus, cytomegalovirus, dengue, Epstein-Barr, hepatitis A, hepatitis B, hepatitis C, herpes simplex, HIV, human herpesvirus 6, human herpesvirus 8, influenza A (antigenic type H1N1), measles, parainfluenza type III, parvovirus B 19, rubella, and varicella-zoster (2). This report is the first of a VAHS case associated with a mumps virus infection. The clinical course of VAHS is highly variable, and in some cases, especially in Epstein-Barr virus infection, VAHS is a dramatic illness with a potentially fatal outcome (2). This case implies that mumps VAHS may have a positive prognosis.

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Imported Cutaneous Diphtheria, Germany, 1997–2003

To the Editor: The March 2004 report by de Benoist et al. on the incidence of imported cutaneous diphtheria in the United Kingdom (1) prompted us to describe the situation of cutaneous diphtheria in Germany and to analyze the cases reported to the German Consiliary Laboratory on Diphtheria since its establishment at our institute in 1997. The laboratory provides advisory and diagnostic services mainly to microbiologic laboratories throughout Germany.

From 1997 to 2003, 6 cases of cutaneous infections caused by toxigenic Corynebacterium diphtheriae were documented (Table). None of these was accompanied by secondary diphtheria infection. Toxigenicity was determined by both dtx polymerase chain reaction and Elek test (2). As in the United Kingdom, all cases for which clinical information was available (N = 5) were imported. Three were found in tourists who had traveled to tropical countries: a 20-year-old diver had injured her heel after stepping on coral in Thailand; a 60-year-old tourist had a chronic ulcer develop in the thigh after a trip to Indonesia (no history of an insect bite); and a 39-year-old traveler to Kenya returned with a purulent ear infection with no memory of trauma or insect bite. The remaining imported C. diphtheriae skin infections were reported in 2 Angolan children.

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5 and 10 years of age, who were brought to Germany by a humanitar-
ian organization for surgery on severe gun wounds to their lower extremities
(foot and thigh with chronic osteomyelitis, respectively). To our
knowledge, these reports are the first of cutaneous diphtheria in gunshot
wounds in recent years. Moreover, in the patient with the thigh wound, C. dip-
theriae was also isolated from a deep fistula, which suggests involve-
melt of C. diphtheriae in the chronic osteomyelitis.

As in the United Kingdom, all cases of diphtheria reported since 1997
were caused by C. diphtheriae mitis. In
4 of 5 cutaneous diphtheria patients who had an available medical history,
mixed infections with Staphylococcus aureus and Streptococcus pyogenes
were found; 3 of 5 patients were not sufficiently vaccinated against diph-
theria as recommended. Systemic symptoms, such as malaise and gen-
eral weakness, developed in the 20-year-
old Thailand tourist, although she had
received a booster dose just before her travel. Cutaneous diphtheria must be
expected even in vaccinated patients;
for instance, among serum samples of
287 healthy German adults with a
complete record of basic immuniza-
tion against dipheria, only 42.2%
showed full serologic protection
as indicated by antitoxin levels
≥ 0.1 IU/mL (3).

As de Benoist et al. outline, cuta-
neous diphtheria might be difficult to
diagnose because of its unspecific
clinical appearance and the presence
of mixed infections in chronic nonhealing skin lesions. Because of
the nearly complete disappearance of
cutaneous diphtheria in many parts of
the western world, microbiologists
lack experience in identifying C. dip-
theriae grown from specimens. From
1997 to 2003, approximately one fifth
of the strains sent to our Consiliary
Laboratory on Diphtheria for species
identification and toxin testing were
either nondiphtheria Corynebacterium
spp. or noncoryneform bacteria of dif-
erent genera (including lactobacilli,
Dermabacter hominis, and Propionibacterium acnes).

Clinicians (4) and microbiologists
(5) should be aware of the possibility
of cutaneous diphtheria in chronically infected skin lesions in patients
returning from disease-endemic regions. Medical personnel should
include this in civilian as well as mil-
itary health services, since our cases
indicate that toxigenic C. diphtheriae
might affect not only travel-related
skin injuries caused by leisure or
tourist activities but also wounds in
patients from war regions in diphtheria-endemic areas.

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Antimicrobial Drug
Consumption in Companion Animals

To the Editor: During the last
decade, use of antimicrobial drugs for
growth promotion and therapeutic
treatment in food animals has received
much attention. The reservoir of resist-
ant bacteria in food animals implies a
potential risk for transfer of resistant
bacteria, or resistance genes, from
food animals to humans. Subsequent
emergence of infections in humans,
caused by resistant bacteria originat-
ing from the animal reservoir, is of
great concern. These unintended con-
sequences of antimicrobial drug use in
animals led to termination of anti-
microbial growth promoters in food ani-
mal in countries in the European
Union, including Denmark, where the
consumption of antimicrobial drugs
by production animals was reduced by
50% from 1994 to 2003 (1).

In Denmark, the VetStat program
monitors all veterinary use of medici-
ines for animals. VetStat is based on
reporting from the pharmacies and
from veterinary practitioners and con-
tains detailed information, such as
animal species, reason for prescrip-
tion, and dosage on each prescription.
In Denmark, antimicrobial drugs can
be obtained only by prescription and
only at pharmacies.

So far, use of antimicrobial drugs in
companion animals has received
little attention; monitoring programs
have focused on antimicrobial drug
consumption in food animals. Accord-
ing to data generated by the
VetStat program in 2003, consump-
tion of fluoroquinolones and cephalosporins in companion animals
was substantial when compared to
consumption in food animals (1). Fluoroquinolones and cephalosporins
are antimicrobial drugs ranked by
the U.S. Food and Drug Administration
as critically important in human med-
icine, and for which emergence of

344 Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 11, No. 2, February 2005