KEY TERMS

Active artificial immunity
Active natural immunity
Aerobe
Anaerobes
Antibodies
Antigen
Autoimmune
Bactericidal
Bacteriostatic
Benign
Chemotherapy
Culture and sensitivity (C & S)
Host
Inflammation
Malignant
Metastasis
Nosocomial
Passive artificial immunity
Passive natural immunity
Pathogenic
Superinfection

THE IMMUNE RESPONSE

When microbes or other **antigens** (foreign substance) invade the body, the body responds by attacking the antigen. The natural response against any microbial invasion is **inflammation,** which helps limit the spread of microbes or injury (Fig. 17-1). The four signs of inflammation are redness, swelling, heat, and pain. Several phases occur during this attack.

The first response occurs at the site of the invasion (e.g., a cut), where chemicals are released, such as bradykinin (a vasodilator that causes pain), complement, (a protein that destroy antigens), and three chemicals released by mast cells: histamine and leukotrienes, both of which cause smooth muscle contraction, blood vessel dilation, and itching; and prostaglandins, which increase capillary permeability, attract leukocytes to the inflammation site, and increase pain.

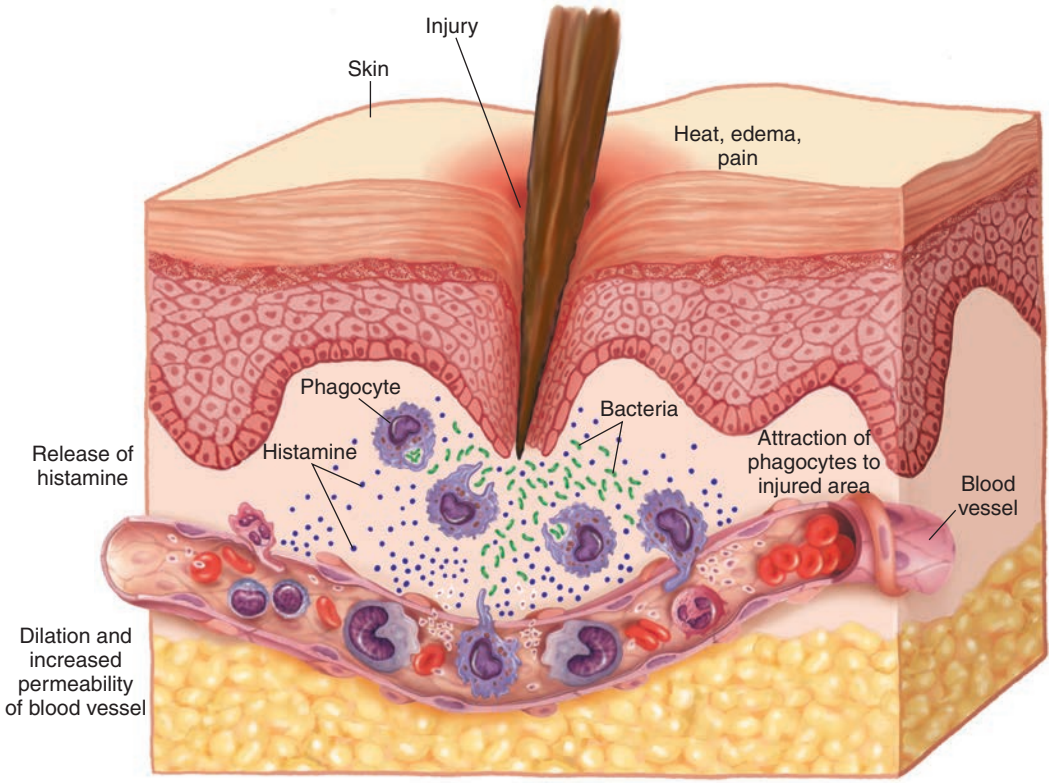

FIGURE 17-1: The inflammatory response. When bacteria or other antigens invade the body, the first response is inflammation, which helps limit the spread of the invading microorganisms.