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What is Evidence-Based Dentistry, and Do Oral Infections Increase Systemic Morbidity or Mortality? 491
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From Celsus’ first reports of rubor, calor, dolor, tumor, and functio laesa, has come an understanding of inflammation’s manifestations at the organ, tissue, vascular, cellular, genetic, and molecular levels. Molecular medicine now raises the opposite question: can local oral infections and their inflammatory mediators increase systemic morbidity or mortality? From these perspectives we examine the clinical evidence relating caries, periodontal disease, and pericoronitis to systemic disease. Widespread affirmation of an oral-systemic linkage remains elusive, raising sobering cautions.

What is the Role of Biofilms in Severe Head and Neck Infections? 497
J. Michael Ray and R. Gilbert Triplett

Most infections of the head and neck and virtually all of those encountered in the practice of dentistry are caused by bacteria that are organized into biofilms. A biofilm is a complex, usually multispecies, highly communicative community of bacteria that is surrounded by a polymeric matrix. Treatment of these types of infections with traditional antibiotics alone is ineffective, and surgical removal of diseased tissue is still necessary.

Should Teeth Be Extracted Immediately in the Presence of Acute Infection? 507
Ankur Johri and Joseph F. Piecuch

Immediate extraction of teeth in the setting of an acute infection has shown to be beneficial for many reasons. It results in faster resolution of the infection, decreased pain, and earlier return of function and oral intake. The risk of seeding the infection into deeper spaces by performing immediate extraction is low.

Should We Wait for Development of an Abscess Before We Perform Incision and Drainage? 513
Rabie M. Shanti and Shahid R. Aziz

Deep neck infections are infections (either abscess or cellulitis) that are within the potential spaces and fascial planes of the head and neck. Deep neck infections should not be ignored, and no surgeon should underestimate the necessity of appropriate and timely treatment of deep neck infections due to the serious and potentially life-threatening nature of these infections. This article discusses and reviews the literature with regard to a question that has long been debated in the surgical literature, “Should we wait for the development of an abscess before performing incision and drainage?”

What are the Antibiotics of Choice for Odontogenic Infections, and How Long Should the Treatment Course Last? 519
Thomas R. Flynn

In the everyday practice of oral and maxillofacial surgeons, empiric antibiotics are prescribed in the face of uncertainty. Is there a highly resistant organism
present? Are the old-line antibiotics no longer effective? Should a broad-spectrum antibiotic be used just to cover all the bases in this case? The surprising result of this systematic review is that when combined with appropriate surgery, the usual antibiotics are all effective. Safety and cost become the differentiating factors in this clinical decision.

Should Prophylactic Antibiotics Be Used for Patients Having Removal of Erupted Teeth? 537
Daniel M. Laskin

Generally, antibiotics should not be required before the removal of erupted carious or periodontally involved teeth unless a significant risk of postoperative infection is present. The decision to use prophylactic antibiotics in noninfected cases should also be based on whether patients have any significant medical risk factors that could adversely affect their humoral and cellular defense mechanisms, and whether any systemic risks are associated with the bacteremia that accompanies tooth extraction. This article discusses the various indications for using prophylactic antibiotics in patients having erupted teeth extracted based on a consideration of these factors.

Do Antibiotics Reduce the Frequency of Surgical Site Infections After Impacted Mandibular Third Molar Surgery? 541
Srinivas M. Susarla, Basel Sharaf, and Thomas B. Dodson

Surgical removal of impacted third molars remains the most common procedure performed by oral and maxillofacial surgeons. Given the abundance of host bacteria within the operative sites, surgical site infections are among the most common complications of third molar removal, with an estimated frequency of 1% to 30%. In this setting, significant controversy has surrounded the use of prophylactic antibiotics in the surgical management of impacted third molars. This article provides a comprehensive review of the available data on antibiotic prophylaxis in impacted third molar surgery and offers specific recommendations on antibiotic use.

Does the Use of Prophylactic Antibiotics Decrease Implant Failure? 547
Basel Sharaf and Thomas B. Dodson

The use of prophylactic antibiotics in implant dentistry is controversial. Given the known risks of antibiotic treatment and lack of consensus on using antibiotics at the time of implant insertion, the purpose of this article was to review available studies on use of perioperative prophylactic antibiotics at the time of implant placement and to provide evidence-based recommendations for antibiotic use. The reviewed studies suggest that a single preoperative dose of 2 g amoxicillin 1 hour before implant placement or 1 g amoxicillin 1 hour preoperatively and 500 mg 4 times daily 2 days postoperatively can reduce the rate of implant failure.

How Can We As Dentists Minimize Our Contribution to the Problem of Antibiotic Resistance? 551
Drew B. Havard and J. Michael Ray

More than 30 million pounds of antibiotics are used in the United States per year, more than 90% for nontherapeutic purposes in animals. Environmental contamination by trace amounts of antibiotics and highly resistant bacteria can lead to resistant infections in humans. Oral and maxillofacial infections are largely mediated by biofilms, which are resistant to antibiotics. Primary treatment is surgical debridement, removal of the cause of the infection, and drainage of pus. Current best practices...
indicate the use of antibiotics as adjunctive therapy to surgery only when regional, distant, or systemic spread of the infection is a significant risk.

How Can We Diagnose and Treat Osteomyelitis of the Jaws as Early as Possible? 557
Gerard F. Koorbusch, Joseph R. Deatherage, and Joel K. Cure

Osteomyelitis of the jaws is an uncommon infection of the maxillofacial area. The disease is often difficult to diagnose, and thus delays in treatment are common, increasing its morbidity. The clinical, radiographic, and laboratory findings of the disease; its forms; and treatment modalities are reviewed. Suggestions for contemporary diagnosis and surgical treatment of acute and chronic suppurative osteomyelitis are discussed.

Do Dental Infections Really Cause Central Nervous System Infections? 569
Stewart K. Lazow, Steven R. Izzo, and David Vazquez

In the post–World War I antibiotic era, the prevalence of central nervous system (CNS) infections is estimated to be 1 per 100,000 population. The literature is replete with anecdotal case reports of CNS infections of apparent dental etiology. Conversely, it is widely cited that the incidence of CNS infection of dental etiology is only in the range of 1% to 2%. We seek to answer the question if dental infections really cause CNS infections. In this article, we focus on septic cavernous sinus thrombosis and brain abscess and if it is a diagnosis of exclusion or evidence-based.

How Do We Manage Oral Infections in Allogeneic Stem Cell Transplantation and Other Severely Immunocompromised Patients? 579
Stefan Palmason, Francisco M. Marty, and Nathaniel S. Treister

The oral cavity is among the sites in the body most susceptible to infections. In the immunocompetent population these are most frequently localized odontogenic infections caused by bacteria. In severely immunocompromised patients, such as those undergoing allogeneic stem cell transplantation, fungal and viral infections become especially prominent. Infections in this population can present in an unusual fashion, can spread rapidly to other organs in the body, and are more frequently resistant to therapies. This article discusses the current knowledge of the most frequent presentations of infections in this patient population and reviews contemporary approaches to prevention, diagnosis, and management.

What are the Lessons We Can Glean from a Review of Recent Closed Malpractice Cases Involving Oral and Maxillofacial Infections? 601
Steven M. Holmes and Debra K. Udey

OMS National Insurance Company insures over 4700 oral and maxillofacial surgeons, 83% of the fellows and members of the American Association of Oral and Maxillofacial Surgeons. The company has over 10,000 closed malpractice claims involving oral and maxillofacial surgeons. Data and trends involving infections that developed following elective surgical procedures and trends involving patients with preexisting odontogenic infections with adverse outcomes are well known to the company. Seven percent of the 10,000+ closed claims involve infections. Recognition and diagnosis of the infection leads to appropriate and timely treatment of infections. Delayed recognition, consultation, and referral leads to delay in the institution of appropriate treatment and can lead to adverse outcomes.