Hinman’s stars come out

By John Hoffman
News Editor

This year’s Thomas P. Hinman Dental Meeting is packed with lectures and seminars aimed at helping dentists upgrade their practices and keep abreast of advances that are revolutionizing dentistry.

The theme of the meeting is to put dentistry’s technological advances in a historical context, providing an understanding of dentistry’s past, insights into dentistry today and a vision for its future, explains Dr. Dan Dunwody, the meeting’s general chairman.

“New technologies in medicine and the biological sciences are converging, and this will lead to huge advances for dentistry within the next decade or so,” Dunwody says. “The meeting will show how dentistry is evolving and what advances are on the horizon. It will also be packed with presentations to enable clinicians to upgrade their skills and take evidence-based knowledge back to their practices.”

One of the meeting’s feature talks will be by Dr. Harold Slavkin, dean of the University of Southern California School of Dentistry. He will lecture on tissue nanobiotechnology, an example of what Dunwody cites as an emerging technology that could revolutionize dentistry in the next few years.

Health care, dental costs projected to grow

The American Dental Association (ADA) reports that the government expects dental spending to surpass $100 billion this year and climb to almost $170 billion by 2017.

Like health care expenditures, dental costs are projected to continue to outpace economic growth.

The ADA’s survey center, using data from the Bureau of Labor Statistics, reports that general prices rose by 2.8 percent in 2007 but costs for dental services climbed 5.1 percent.

As reported earlier by the ADA, data show dental spending rose by 5.7 percent during the previous year, from $86.6 billion in 2005 to $91.5 billion in 2006.

The government estimates the United States spent $96.9 billion on dental services in 2007 and will spend $102.4 billion this year. Per capita dental spending should rise from $825 in 2002 to $919 in 2017.

In a private study, the Millennium Research Group reports that dental implants and facial aesthetic procedures are both growing in the United States at compound annual growth rates (CAGR) of more than 15 percent. In contrast, non-cosmetic procedures are growing at CAGRs of only less than 5 percent.

From 2008 to 2011, dental implant procedures will expand at a CAGR of more than 18 percent. These procedures are projected to experience especially high growth because of patients’ desire for aesthetically pleasing and healthy teeth, technological improvements of current dental implant devices and greater awareness among general practitioners.
“Biomimetics are playing an increasing role in dentistry,” Dunwody notes. “With the emergence of cellular technologies, dentistry is evolving from being merely able to imitate to being able to duplicate. Instead of replacing damaged teeth and tissues with artificial ones, dentists may soon replace them with real ones.”

The list of speakers is extensive. If attendees aren’t overwhelmed with information, they should be able to find expertise on whatever topics interest them.

Dunwody notes that among the superstar speakers, Dr. Peter Dawson is being honored on Saturday, and Dr. Gordon Christensen is speaking on new aspects of restorative dentistry.

Dr. Paul Feuinstein is addressing emerging technologies, Dr. Sascha A. Jovanovic is lecturing on implant dentistry, Dr. Walter F. Turbyfill, Jr., is looking back on 50 years of the practice of dentistry, and Dr. David M. Sarver is examining the aesthetics of facial aging.

“If you treat a teenager, what can you expect him to look like in 20 years,” asks Dunwody, himself a nationally renown orthodontist.

But while technology is a main focus of the meeting, seminars are also being devoted to aesthetics, communications and office management, especially ways to motivate and lead dental employees. Imtiaz Manji is speaking on becoming a dental CEO, Sally McKenzie will address improving practice potential, and John McGill will discuss achieving financial independence in 10 years or less.

Charitable outreach efforts also have a home at Hinman. Drs. Van R. Haywood, Richard R. Garza, David A. Zelley, Marshall L. Wade and Bruce E. Carter are speaking jointly on dental missions.

“The local Atlanta-area chapter of Brighter Smiles for Brighter Futures, which Dr. Carter heads, raised $750,000 for breast cancer research by recruiting dentists to provide bleaching services to patients,” Dunwody notes.

COSTS

practitioners who can perform dental implant procedures.

“Facial aesthetic procedures will grow more than 15 percent over the next five years,” says Jaya Classen, senior analyst at the Millennium Research Group. “While non-cosmetic implant procedures are typically limited to those that are afflicted with a disease or infirmity, cosmetic procedures face no such demographic barriers to growth — the number of people seeking to improve their looks seems endless.”

Health care spending in the United States is projected to have grown by 6.7 percent in 2007, according to a report by the Centers for Medicare and Medicaid Services (CMS). Average yearly health care costs are expected to continue to grow by around that rate through 2017, according to a 10-year forecast by CMS published online in the journal Health Affairs.

Throughout the 2007-2017 period, annual health spending is expected to grow faster than both the overall economy (4.9 percent) and the rate of general inflation (2.4 percent).

As a percentage of gross domestic product, health care spending was projected to increase to 16.5 percent in 2007 from 16 percent in 2006, the government says. By the end of the projection period, health care spending in the United States is expected to climb to just more than $4.5 trillion and account for 19.5 percent of GDP.

The growth of health spending through public programs is expected to ease to 6.8 percent in 2008 and rise by 8.2 percent in 2009, largely because of implementation of the Medicare Part D drug benefit.

Public health spending growth is expected to gradually improve as the market reaches the midpoint of the projection period, as the leading edge of the baby boom generation begins to enroll in Medicare.

“The cost of health care continues to be a real and pressing concern,” cautions CMS actuarial administrator Kerry Weems. “This projection of health care spending reminds us that we need to accelerate our efforts to improve our health care delivery system to make sure that Medicare and Medicaid are sustainable for future generations of beneficiaries and taxpayers.”

Last December, Congress passed the Medicare, Medicaid, and SCHIP Extension Act (MMSEA), providing a 0.5 percent increase to the Medicare Physician Fee Schedule (MPFS) for the first six months of 2008, followed by a 10.6 percent reduction in the MPFS for the second six months of 2008. This CMS projection of health spending growth does not include the impacts of the MMSEA. Instead it features a new simulation of an annual zero percent increase to the MPFS and compares that to the anticipated impact of negative payment updates that were in the law before the MMSEA was enacted.

Based on this simulation, by 2017, annual zero percent updates to the MPFS would be expected to result in Medicare physician spending and overall Medicare spending totals that are 25.3 percent and 6.4 percent higher, respectively, when compared to the expected spending associated with negative payment updates to the MPFS. The effect of a zero percent MPFS update on total health spending is projected to be much smaller, with total health care spending estimated to be 0.7 percent higher in 2017.

(Sources: Millennium Research Group, CMS and ADA)

— John Hoffman
Primary care physician training declines in U.S.

The United States is training fewer primary care physicians and other professionals in health care related fields, according to a Government Accountability Office (GAO) report delivered to the Senate Health, Education, Labor and Pensions Committee.

The number of U.S. medical school graduates enrolled in primary care residency programs, such as family medicine, internal medicine and pediatrics, fell from 23,801 in 1995 to 22,146 in 2006, according to the GAO.

“IT is beyond comprehension that America is not able to graduate the kinds of health professionals we need, and it is morally wrong that we are depleting the number of health care providers from the poorer countries of the world,” charges committee chairman Senator Bernie Sanders (I-Vt.).

“There are simply not enough primary care providers now, and the situation will become far worse in the future unless we do something,” Sanders says.

He is proposing to double funding for the National Health Service Corps to $250 million next year. “Part of the solution lies in making medical, dental and nursing education affordable for all Americans,” he notes.

Insurer backs down in fight over confidential disclosures

Lobbying by the American Medical Association (AMA) has prompted Blue Cross California to withdraw its policy of asking health care professionals to report pre-existing conditions among patients.

“The foundation of the patient-physician relationship is trust, and for health insurers to implement policies forcing doctors to break this trust and police patients is wrong,” Edward L. Langston, MD, board chair of AMA, said in a statement on the association’s Web site.

“This high debt burden can and does play a role in students’ ultimate career choices, potentially deterring them from primary care specialties or practicing in underserved areas.”

Among the provisions the AMA advocated for is a federal loan forgiveness program for physicians who serve in areas of need. That allows eligible medical specialists with five or more years of graduate medical education to qualify for up to $2,000 of forgiveness annually and up to $10,000 over five years of service.

Other provisions in the bill the AMA advocated for include disclosure requirements for private lenders and certain federal lenders to make student loans more transparent, and a Government Accountability Office study to analyze the impact of debt on medical school graduates.

The College Opportunity and Affordability Act of 2007, H.R. 4157, amends the Higher Education Act of 1965 (HEA) and reauthorizes it for another five years. The Senate passed its version of the bill on July 26, 2007. The House and Senate will hold a conference to resolve differences between the bills before sending it on to the president. The HEA expires on March 31, 2008.

Source: AMA

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Source: AMA

AMA lobbies for educational bill

The American Medical Association (AMA) reports it has “successfully secured” provisions in the College Opportunity and Affordability Act of 2007 that will help medical students and residents with their debts and ensure there are enough young physicians to serve the nation.

“Most medical students enter the workforce with substantial debt, an average of $140,000 when entering residency,” notes Chris DeRienzo, AMA board member and fourth year medical student at Duke University. "This high debt burden can and does play a role in students’ ultimate career choices, potentially deterring them from primary care specialties or practicing in underserved areas.”

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Australian Dental Association praises Queensland for water fluoridation

The Australian Dental Association (ADA) is praising Premier Bligh for adding fluoride to Queensland’s water supplies to improve the oral health of its citizens. The action will bring Queensland in line with Australia’s other states and territories. Fewer than 5 percent of Queenslanders currently have had access to fluoridated public water.

Within two years, 80 percent of Queenslanders will be drinking fluoridated water, and by 2012, fluoridated water will reach more than 90 percent of its population.

Dr. John Matthews, president of the ADA, notes that water fluoridation “has proven to be an efficient, effective and an equitable public health measure” for reducing dental decay in all age groups.

Children in Townsville, a town in Queensland that began water fluoridation in 1964, have 45 percent less tooth decay than their counterparts in Brisbane, a city of nearly 1.8 million people that has no fluoride in its public water.

“There is no evidence that any adverse health effects,” Pilotis says. “Research shows that tooth decay in children in this state is higher than the national average: 2- to 6-year-olds have 30 percent more decay in their baby teeth, with a similar result for permanent teeth in 12 year olds. Fluoridation will turn this around and deliver better oral health for Queensland.”

The ADA reiterates its endorsement of fluoride.

“Although fluoridation has been subject to debate lately, there has been no convincing or credible scientific evidence that fluoride, when supplied at the optimum level (1 part per million) in drinking water, causes any adverse health effects,” the organization says.

IADMD calls for health care reform

The International Association of Dental and Medical Disciplines (IADMD), a professional association of dentists and physicians dedicated to promoting universal health care, and its founder, Dr. John J. Ryan, DMD, issued a statement on allegations that New York attorney general Andrew Cuomo made concerning the health care billing information firm Ingenix.

“Ingenix, a database company used by dozens of insurers, is the nation’s largest provider of health care billing information,” IADMD notes. “According to a Feb. 14 article in the New York Times, during a Feb. 15 press conference, Cuomo alleged that Ingenix systemically reduced the amount of money consumers should have been reimbursed.’

‘UnitedHealth Group, the parent company of Ingenix, issued a written statement saying the company is ‘…in the midst of on-going discussions with the Attorney General’s office’ … but disputes Cuomo’s characterization of the numbers, stating ‘The reference data is rigorously developed, geographically specific, comprehen- sive and organized using a transparent methodology that is very common in the health care industry.’”

“If Cuomo’s allegations are true, this is just one example of billions of travesties that occur every single day in the U.S.,” charges Ryan, a dentist in East Hampstead, N.H. and a dental examiner for the North East Regional Board of Dental Examiners.

“This is what IADMD calls bureaucratic madness. There is waste and there is deception shortchanging every policyholder’s wallet, and it needs to end. Americans who need health care and make sacrifices in their quality of life to afford to pay for insurance should not be cheated or deceived by their insurers.”

Source: IADMD
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Build a better practice brand

By Roger P. Levin, DDS

What is a brand? It is those unique qualities that set a company or a product apart from the competition. Coca-Cola and Mercedes-Benz are two of the world’s most famous brands. Each of these companies has a quality product that customers perceive as valuable. Whether it is a refreshing soft drink or a well-engineered luxury car, these companies have defined their competitive advantages in the marketplace. To reach the highest level of success, dentists need to brand their practices.

Levin Group has seen doctors who have rebranded their practices achieve exceptional results both in the near and long term. These six action steps will help you brand your practice:

**Identify your competitive advantages.** What do you consider your strengths or competitive advantages? What do your patients perceive as your strengths? Are they the same things? View your practice through the eyes of your patients. Ask for patient feedback to make sure your competitive advantages are being communicated to patients.

**Improve customer service.** Look at the total patient experience. Does your scheduling system work? Are patients seen on time? Are front desk staff members helpful? Harried, overstressed staff members make a poor impression on customers. Practice success is built on business systems that promote efficiency, facilitate customer service and decrease stress.

**Upgrade your office appearance.** What does your décor say about your practice? If your practice has many younger patients, is your office decorated appropriately? Do you have toys and picture books that make coming to your office a fun experience for children? For your adult patients, do you have recent magazines that reflect a variety of interests? All these factors contribute to a positive or a negative patient experience.

**Find the right service mix.** Practices need to offer the right mix of need-based dentistry and elective services to increase production. The Levin Group Method™ recommends practices derive at least 22 percent of production from elective services. What elective services do you currently offer? Are patients requesting services you don’t currently offer? Selecting the right high-quality services will establish your brand.

**Training your staff.** Establishing step-by-step guidelines for every practice operation is the first step to training your staff. You need the right systems in place, so your staff can provide the best patient care. Use structured morning meetings to reinforce procedures and protocols for scheduling, case presentation and patient treatment. Appoint an office manager or a senior staff member as your training point person. To properly brand your practice, staff training must encompass all your services and products offered to patients.

**Market your brand.** Once a practice has defined its competitive advantages, it must make patients aware of its brand components time and time again. The staff must be trained to emphasize and reinforce this messaging throughout the patient experience. Collateral materials, such as brochures and posters, must support the brand.

**Conclusion**

Your brand is a promise to patients. Is your practice currently “saying” the right things to patients? Are there things you can do that will communicate your brand better to patients? Step back and take an objective look at your practice. Is it where you want to be? These six action steps can help you make your brand a reality.

Dental Tribune readers are entitled to receive a 20 percent courtesy on the Levin Group Practice Productivity Seminar on May 14-15 in Las Vegas. To register and receive your discount, call (888) 973-0000 and mention “Dental Tribune” or e-mail customerservice@levingroup.com with “Dental Tribune” in the subject line.

Dr. Roger P. Levin, DDS, is founder and chief executive officer of Levin Group, Inc., a leading dental practice management consulting firm. For more than 20 years, Levin Group has helped thousands of general dentists and specialists increase their satisfaction with practicing dentistry.
Temporomandibular disorders

Part 1: Epidemiologic and etiologic considerations

Editor’s note: Following is the continuation of an article that appeared in the March 17-23 issue of Dental Tribune. Part 2 in this series also begins on this page. Part 3 will appear in next edition.

Basic assessment of all TMD patients should include behavioral and psychological screening by the dentist during the history taking process. The history should include questions to evaluate behavioral, social, emotional, and cognitive factors that may initiate, sustain or result from the patient’s condition. Consideration to relevant factors such as oral habits, signs of depression, anxiety, stressful life events, lifestyle, secondary gain, and overuse of health care should also be given. Imaging of the TM joint and orofacial structures may be necessary to rule out structural disorders, and must be prescribed primarily when the clinical examination suggests some form of disorder.

Heretofore clinical practice in the area of TMD has been based on anecdotal reporting. Individual and group interpretation of the limited scientific evidence has led to a marked variation in the philosophy of practice in this complex area. Empiricism and rationalism has at times resulted in disregard for the valid scientific evidence-base that does exist. With the explosion of knowledge regarding pain mechanisms and pathways, the effect of pain on quality of life, and an enhanced appreciation for the multifactorial nature of TMD, today’s dentist can better apply science to the art of practicing evidence-based dentistry. Evidence-based dentistry is the conscientious, explicit and judicious use of best evidence in making decisions about the care of each patient. “The purpose of using the evidence-based approach is to close the gap between what is known and what is practiced and to improve patient care based upon informed decision making.”

Albert Einstein said, “Science without religion is lame, religion without science is blind.”

Part 2: Diagnostic classification

The head, face, masticatory system, and cervical region are common sites in which pain is experienced. Many conditions present with similar signs and characteristic patterns that may lead to diagnostic confusion and ultimately misdirected care. Defined, validated classification systems relating to the multiplicity of painful entities can simplify and enhance diagnostic outcomes. Due to the rapid advances in our knowledge regarding pain mechanisms and pathways, classification systems must be ever-evolving, not rigid. Presently an ideal system related to masticatory system disorders does not exist.

One set of diagnostic criteria will not satisfy all circumstances to which it might be applied. More importantly, many classifications systems were developed for the purpose of enhancing the formation of study populations for clinical research endeavours and are not absolutely applicable to every clinical case presentation.

For example, the inclusion criteria for a clinical trial might require the presence of all criteria for a specific disease, while a clinical diagnosis might require the presence of only a few. These criteria are meant only to provide clinical guidance for diagnosis. Final diagnostic decisions must be based on the clinical judgment of the health care professional.
A positive alternative for needle phobic dental patients

By Heather Victron

Up to 15 percent of the population declines necessary dental treatment, primarily because they fear oral injections.1 Medically known as belonephobia, and commonly referred to as “needle phobia,” a deep-seated fear of needles often first develops in early childhood and can continue into adulthood, affecting people of all ages.

For belonephobics, the mere sight of a needle can produce a physical domino effect known as a vasovagal reaction: central nerve flares, blood vessels dilate, blood pressure drops and the patient faints.2 Other symptoms include light-headedness, skin paleness, dizziness, shortness of breath, shakiness, profuse sweating and sometimes even loss of bladder control. Needle phobic patients’ “fight or flight” instincts go into overdrive before a needle is ever even brought out.

Because people afflicted with belonephobia will go to great lengths to avoid needle pricks, it can be difficult to get them through a dental office’s doors. Many would sooner undergo general anesthesia with an IV for a dental procedure than have to suffer through the anxiety of multiple shots in the mouth. There’s only one problem — general anesthesia uses a needle too.

So what is the answer for people who can’t bear the pain and anxiety but require essential dental treatment? Oral conscious sedation dentistry offers a safe and effective alternative to general anesthesia for belonephobic patients, without the use of any additional needles. Even more, patients seldom remember the introral injections they receive during their procedures due to the anterograde amnesia created by the oral sedatives.

Appropriately trained dentists can use a variety of protocols to easily, comfortably and safely sedate even the most anxious and fearful needle phobic patients. Oral medication swallowed whole or crushed and administered sublingually can relax, calm and ease patients into their dental procedures.

A key strategy in combating belonephobic symptoms is relieving the pre-anxiety that occurs before an appointment. Depending on the regimen, medication also may be taken the night before and the morning of the treatment — relieving a patient’s apprehension, jitters and nervousness prior to them getting to the office.

It’s important to keep in mind that some people with needle phobia are more afraid of the pain the injection will cause than of the actual needle itself. Topical anesthetics and gels used at the injection site can offer some relief. However, when coupled with the use of oral sedatives, they provide a positive option for combating the fear and anxiety that needle phobic patients normally feel.

Experiencing dentistry in a positive new way also may give needle phobic patients the courage to seek other medical treatments they have neglected. They tend to avoid any procedures, dental or otherwise, that involve the use of needles, delaying or skipping necessary blood tests, immunizations and even life-saving minor procedures such as skin biopsies.

Oral sedation dentistry brings belonephobic patients one step closer to conquering their fears. It gives dentists the assurance that they are providing the highest quality care possible and patients the confidence to receive the dental treatment they need.

To learn more about how to provide oral conscious sedation to patients, visit DOCSeducation.org or call (877) 325-3627.

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This article will provide the reader with a review of the most accepted diagnostic classification system related to temporomandibular disorder (TMD).

It is generally recognized that two basic categories of TMD exist, extracapsular (myogenous) and intracapsular (arthrogenous). The majority of TMDs are extracapsular in nature; however, it is not uncommon for these two basic categories to co-exist.

Masticatory muscle-related conditions are found to be the most common subgroup of TMD.1,2 The current understanding of the complexity and the dynamic relationship between the masticatory and cervical musculature enables the practitioner to better assess the condition(s) possible etiology(ies). The individual variations and demands placed on the system, as well as normal function while awake or sleep, are true considerations in our patient evaluation.

Myofascial pain is a regional pain, usually dull and achy with the presence of localized tenderness in firm bands of muscle, tendons and/or fascia that reproduce pain when palpated and may produce a characteristic pattern of regional referred pain and/or autonomic symptoms on provocation.3,4 Patients may complain of muscle stiffness, acute malocclusion, ear symptoms, tinnitus, vertigo, toothache, tension-type headache and masticatory muscles involvement.

Myositis is inflammation of a muscle due to local causes such as infection or injury. Pain is usually acute and in a localized area with localized tenderness over the entire region of the muscle. The inflammation also can occur in the tendinous attachment of the muscle, "tendonitis or tendomyositis."5

Increased pain with mandibular activity with alteration in function due to inflammation or pain. Swelling, tissue reddening and an increase in temperature over the entire muscle can be noticed. The most common differential diagnoses to consider include myositis, local myalgia—unclassified and neoplasia.

Myospasm is an involuntary, sudden, continuous (fasciculation) tonic contraction of the muscle. Previously used terms are trismus, "cramp." A muscle in spasm is acutely shortened. The patient experiences acute pain, a limited range of motion and often acute malocclusion.

EMG studies verify sustained muscle contraction even at rest.6 The most common differential diagnoses to consider include myositis, local myalgia—unclassified and neoplasia. The patient usually does not complain of pain unless the muscle is extended beyond its functional length. There are two basic subcategories: myostatic (reversible condition) and myofibrotic (irreversible condition). Clinical characteristics include a limited range of motion, unyielding firmness on passive stretch and a history of trauma or infection is usually reported by the patient. The most common differential diagnoses to consider includes TMJ ankylosis and coronoid hypertrophy.

Masticatory muscle neoplasia can be benign or malignant and may be associated with pain or not. Neoplasia is defined as a new, abnormal or uncontrolled growth of muscle tissue (e.g., myxoma). Confirmation must be obtained by biopsy and imaging. See TM, Page 12.
Aplasia is a faulty or incomplete development of the cranial bones or mandible. Most of the aplasias categorized as congenital or development.

### Aplasia

- **Complete Aplasia**: Total absence of all or part of the jawbone. This can result from genetic mutations or severe trauma.
- **Partial Aplasia**: Absence of certain parts of the jawbone. This can be congenital or acquired due to infection or injury.

#### Syndromes Involving Aplasia

- **Treacher-Collins Syndrome**: Occurs when the cranial bones or the mandible are affected, leading to a characteristic facial appearance.
- **Goldenhar Syndrome**: Affects the cranial bones or the mandible, resulting in asymmetry, hypoplasia, and hypoplasia.

### Hyperplasia and Neoplasia

Hyperplasia is an increase in the size of tissues or organs due to an increase in cell number. Neoplasia refers to the formation of abnormal cells, which can be benign or malignant.

#### Hyperplasia

- Glandular hyperplasia
- Fibrous dysplasia
- Myxoma

#### Neoplasia

- Malignant neoplasms
- Benign neoplasms

### Congenital or Developmental Disorders

- **Aplasia**: Failure of development of the mandible.
- **Hyperplasia**: Increase in the size of the mandible due to benign or malignant tumors.
- **Neoplasia**: Abnormal growth of cells, which can be良性 or malignant.

### General Considerations

- **Orofacial Pain**: Often associated with hyperplasia or neoplasia, with pain and alteration of normal function.
- **Squamous Carcinoma**: Common in the parotid gland (adenoid cystic carcinoma) and mucoepidermoid tumors.
- **Paget’s Disease**: Associated with osteosarcoma, Paget’s disease.

### Clinical Features

- **Orofacial Pain**: Often associated with hyperplasia or neoplasia, with pain and alteration of normal function.
- **Neoplasms**: Can be categorized as benign or malignant, and are rarely accompanied by orofacial pain.

### Treatment

- **Surgical Approaches**: If non-surgical management fails, surgical intervention may be necessary.
- **Radiation Therapy**: Used in cases of neoplasia.
- **Chemotherapy**: Used in cases of metastatic disease.

### Conclusion

Aplasia, hyperplasia, and neoplasia are categorized under hemifacial microsomia syndromes. The auditory system is frequently affected in these syndromes.

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### Inflammatory Conditions

- **Polyarthritides**: Involving arthritis, arthritis, and/or degenerative changes.

### Additional Considerations

- **Osteoarthritic Changes**: Common in synovial joints.
- **Orofacial Pain**: Often associated with hyperplasia or neoplasia, with pain and alteration of normal function.

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**Presently an ideal system related to masticatory system disorders does not exist.**

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**Inflammatory conditions can occur as a localized synovitis, capsulitis or retrodiscal tissues of the temporomandibular joint that can be due to infection, an immunologic or inflammatory condition, or to the degeneration or trauma. Clinically, it is difficult and may be impossible to differentiate between these. Diagnostic criteria for a localized TM joint pain exacerbated by function, especially with superior or posterior joint loading on palpation. No evidence of extensive osteoarthritic changes with hard tissue imaging.**

Additional clinical findings may exist, such as localized pain at rest, limited range of motion secondary to pain, fluctuating swelling (due to effusion) causing a decrease in the ability to chew, or an ipsilateral posterior side and ear pain.

The most common differential diagnoses include: osteoarthritis, polyarthritis, ear infection, neoplasia, juvenile rheumatoid arthritis, myxoedema, rheumatoid arthritis.

Patient may experience pain precipitated by forced mouth opening. A history of clicking that ceased with the occurrence of locking, ipsilateral hyperocclusion (dramatic at acute stage) and occasionally hard-tissue imaging can reveal moderate osteoarthritic changes.

Studies on the progression of the disease have demonstrated very few reducing displaced disc cases progressing to a nonreducing stage, but almost all the non-reducing displaced disc cases developed structural bone changes.

Joint dislocation, or “open-lock”, is characterized by the condyle and usually the disc position anterior to the articular eminence and unable to return to a closed position without a specific manipulation.

Elevator muscles activity and/or a true hyperextension of the disc-condyle complex may be responsible for the patient’s difficulty in returning to a normal position. A temporary dislocation that can be reduced by the patient is referred to as subluxation.

Patient usually reports a history of excessive range of motion (hypermobility) that is not painful, but can occur at the time of dislocation with mild residual pain after the episode. Radiographic evidence reveals the condyle well beyond the eminence. The most common differential diagnosis to consider is fracture.
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Osteoarthritis is classified according to the etiology of the condition. It is divided into a primary and secondary non-inflammatory arthritic condition. The recognition of secondary osteoarthritis is clinically significant because it may represent the first stage of treatment.

Osteoarthritis (primary) is a degenerative non-inflammatory condition of the joint characterized by deterioration and abrasion of the articular tissue and concomitant remodeling of the underlying subchondral bone due to overload on the remodeling mechanism. Osteoarthritis is categorized as primary on the absence of identifiable etiologic factors.

Clinical characteristics include:
- Pain with function, point tenderness with palpation, limited range of motion with deviation to the affected side on opening and crepitus or multiple joint noises. Radiographically, evidence of structural bony changes (subchondral sclerosis, osteoarthritic formation, erosion) can lead to a complete immobility of the TMJ.

Clinical characteristics include:
- Associated trauma, periarticular pain and swelling (synovitis, bursitis, capsulitis), limited opening, and if the condylar fragment is displaced, occlusal changes and deviation to the affected side.
- Fracture is direct trauma to the mandible and may result in fracture to the condylar process. All related components of the masticatory system — soft tissue, disc, capsule, synovial or extracapsular surface — may also be affected.
- Condylar fractures are usually unilateral and may occur in the condylar neck or in the capsule (intra- or extracapsular) with or without displacement. Location of the fracture and degree of the fracture will determine the direction of displacement.

A displacement anterior-medial-inferior usually results due to the action of the lateral pterygoid muscle. Clinical characteristics include:
- Associated trauma, periarticular pain and swelling (synovitis, capsulitis), limited opening, and if the condylar fragment is displaced, occlusal changes and deviation to the affected side.

The development of adhesions and osteoarthrosis are common findings implicated in condylar fractures.

References


Further references available upon request.
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