

ORAL MEDICINE/ORAL PATHOLOGY

1. Question: Clinical presentation of Gardner's Syndrome may include which of the following?

- 1. Intestinal polyps.**
- 2. Multiple osteomas of the mandible.**
- 3. Odontomas and supernumerary teeth.**
- 4. Hyper-pigmentation of vermillion border.**
- 5. Epidermoid cysts of the skin.**
- 6. Multilocular radiolucencies of the mandible.**

- A. 1,2,3,4**
- B. 3,4,5,6**
- C. 1,2,3,5**
- D. All of the above**
- E. None of the above**

Answer: C

Gardner's Syndrome. Rare disorder. May occur at any age. Autosomal dominant. Near 100% penetrance. 1/3 are spontaneous, and represent new gene mutations. Gene found on chromosome 5. Is a part of spectrum of diseases characterized by familial colorectal polyposis. Affects the skin, soft tissues, retina, skeletal system, and teeth.

Occur in 1:8,300 to 1:16,000 of live births.
Colonic polyps happen in second decade.
They are adenomatous and transform into adenocarcinomas.
Extra colonic polyps possible in small intestine and stomach.

Clinical Presentation

Up to 90% of those afflicted have skeletal abnormalities.
Osteomas are the most common associated abnormality.
Skull, paranasal sinuses and mandible.
Mandibular angles, facial deformity.
Noted during puberty, and precede the bowel polyps.
Osteomas present as radiodensities.
Increased incidence of odontomas and supernumerary teeth.
One or more epidermoid cysts of the skin.
Desmoid tumors (fibrous neoplasms) 10%, 3X more in females.
Less common is thyroid carcinoma. Females have it 100X more than males.

Treatment and Prognosis

High rate of malignant transformation to invasive adenocarcinoma.
By age 30, 50% of those with the syndrome will get colorectal carcinoma. Malignant change reaches 100% in older patients.

Prophylactic colectomy recommended. Some osteomas may be removed for function, but the polyps are the main factor.

Other syndromes with intestinal polyposis:

Peutz-Jegher's Syndrome

Cowden's Syndrome

Turcot's Syndrome

Oral and Maxillofacial Pathology, Neville, Damm, Allen, Bouquot, 2nd Ed, 2002 Saunders. Page 567-8

2. People with well controlled diabetes are no more susceptible to infections than people without. Antibiotic prophylaxis of patients with diabetes is dependent on host factors and invasiveness of the procedure.

- A. First statement is true, second statement is false**
- B. First statement is false, second statement is true**
- C. Both statements are true**
- D. Both statements are false**

Answer: C

-People with well controlled diabetes are no more susceptible to infections than people without. They do however have more difficulty containing existing infections. This is due in part to altered leukocyte function.

-Elective oral surgery in poorly controlled patients should be deferred until control is accomplished.

-In the case of an emergency or where a serious oral infection exists, consideration should be given to have the patient admitted to a hospital to manage hyperglycemia and have aggressive management of the infection. Penicillin therapy is initiated. If response is poor, sensitivity testing is used to help choose a more effective antibiotic.

General Surgical Guidelines

-Routine antibiotic prophylaxis of patients with controlled diabetes undergoing surgical procedures is controversial.

-Surgical procedures must have a high incidence of infection for prophylactic antibiotics to reduce the incidence of infection.

-The incidence of infection after tooth extraction, frenectomy, biopsy, minor alveoloplasty, and torus reduction is extremely low, antibiotics would provide no benefit.

(These are considered routine in office dental procedures.)

These are factors that may lend themselves to antibiotic coverage.

- 1) Size of bacterial inoculum
- 2) Extent and time of surgery
- 3) Presence of foreign body (including implant placement)
- 4) State of host resistance

Extensive dental procedures in poorly controlled diabetes can also elevate the blood pressure and increase the potential for cardiac or cerebrovascular incidents as well as transient bacteremias and infections.

Contemporary Oral and Maxillofacial Surgery, Petersen, Ellis, Hupp, Tucker, 3rd Ed. 1998 Mosby. Page 16, 410.
Ellenberg and Rifkin's, Diabetes Mellitus, Porte and Sherwin 1997 Appleton and Lange Page 1231
Dental Management of the Medically Compromised Patient, Little and Falace, 6th Ed, P266, Mosby 2002

**3. TNM cancer staging system stands for Tumor, Nodes and Metastasis.
 Stage 4 (T3 N1 M1) has better prognosis than stage 2 (T2 N0 M0).**

- A) Both statements are true.**
- B) Both statements are false.**
- C) The first statement is true, second statement is false.**
- D) The first statement is false, second statement is true.**

Answer: C

- Clinical staging is of greater importance than histopathologic grading in predicting biologic outcome.
- Tumor
 - T1: <2 cm
 - T2: 2.1 to 4.0 cm
 - T3: >4.0 cm
 - T4: >4.0 cm with infiltration of muscles or bone
- Nodes
 - N0: No palpable
 - N1: 1 ipsilateral node <3 cm
 - N2a: 1 ipsilateral node 3.1-6.0 cm
 - N2b: Multiple ipsilateral nodes <6 cm
 - N2c: bilateral nodes <6 cm or contralateral nodes
 - N3: node >6 cm
- Metastasis
 - M0: no distant metastasis
 - M1: Distant metastasis
- Staging:

Stage	T	N	M
1	1	0	0
2	2	0	0
3	3	0	0
	1-3	1	0
4	4	0	0
	1-4	2-3	0
	1-4	1-3	1

- Stage 2(T2 N0 M0) has better prognosis than stage 4(T3 N1 M1).

Essentials of Oral Medicine, Silverman, Eversole, Truelove, 2002, BcDecker. p: 196-197.

4. TNM cancer staging system stands for Tumor, Nodes and Metastasis. Stage 4 (T3 N1 M1) has better prognosis than stage 2 (T2 N0 M0).

- A. Both statements are true.**
- B. Both statements are false.**
- C. The first statement is true, second statement is false.**
- D. The first statement is false, second statement is true.**

Answer: C

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Stage	T	N	M
1	1	0	0
2	2	0	0
3	3	0	0
	1-3	1	0
4	4	0	0
	1-4	2-3	0
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- Stage 2(T2 N0 M0) has better prognosis than stage 4(T3 N1 M1).

Essentials of Oral Medicine, Silverman, Eversole, Truelove, 2002, BcDecker. p: 196-197.

5. Which of the following statement regarding Prothrombin time is false?
- A) PT measures the effectiveness of the intrinsic coagulation.
 - B) A normal PT indicates normal levels of factor I, II, V, VII and X.
 - C) Normal PT ranges from 10 to 15 seconds, and is usually compared to a daily control value.
 - D) A prolonged PT can be associated with abnormal postoperative coagulation and bleeding.

Answer: A

PT measures the effectiveness of the extrinsic coagulation. It is performed by measuring the time it takes to form a clot when calcium and a tissue factor are added to the patient's plasma. A normal PT indicates normal levels of factor VII and those factors common to both the intrinsic and extrinsic pathways (V, X, Prothrombin(II) and Fibrinogen (I)). Prolongation of less than one and a half times the control value is usually associated with mild bleeding disorders, while further prolongation indicates a more severe bleeding disorder. The PT is used to monitor oral anticoagulant therapy.

International Normalized Ratio (INR): For patients on chronic oral anticoagulants, to report the PT ratio. Using an international sensitivity index (ISI) which is determined for each batch of reagent and is specific to the lab's particular equipment, the calculation of INR= (patient PT/normal PT)^{ISI}. For most conditions that require ongoing anticoagulation therapy, AHA has recommended INR levels between 2.0 and 3.0.

Tietz N.W.: Clinical Guide to laboratory Tests, 3rd Ed. WB Saunders, 1995.

6. A radiograph is interpreted to have a lesion(s) with a “cotton wool appearance”. What is/are the most likely causes of this?
- A. Paget's disease of bone
 - B. Gardner syndrome
 - C. Cemento-ossesous dysplasia
 - D. Gigantiform cementoma
 - E. All of the above

Answer: E

All of the following diseases can present with a “cotton wool appearance”. Paget’s is more common in older adults and mainly in the maxilla. Gardner syndrome also has multiple osteomas; epidermoid cysts; gastrointestinal polyps with a high tendency toward malignant transformation and is hereditary. Cemento-osseous dysplasia predominates in middle-aged black women and usually in the mandible. Gigantiform cementoma is hereditary and facial enlargement may be present.

Oral & Maxillofacial Pathology, Neville, 1995, pg. 690

7. Which of these is a painless benign tumor of the salivary glands most often found on the palate?

- A. Adenomatoid hyperplasia of the minor salivary glands**
- B. Pleomorphic adenoma**
- C. Adenoid cystic carcinoma**
- D. Warthin’s tumor**

The answer is A.

Pleomorphic adenoma is the most common salivary neoplasm. It makes up most of the parotid tumors. It is also called the benign mixed tumor. It is a painless slow growing mass and is most common in adults between 30 and 50 years old.

Warthin’s tumor is benign and is only in the parotid gland. It is a slow growing nodular mass in the parotid gland and it can occur bilaterally. It is usually in older adults. Surgical removal is the treatment of choice.

Adenoid cystic carcinoma is common salivary malignancy. It can occur in any salivary gland tumor with 50% in the minor salivary glands. It is common in palatal salivary glands. It is rare in ages under 20 more common in middle age adults.

Adenomatoid hyperplasia of the minor salivary glands is rare lesion that mimics a neoplasm. Most often it is a swelling in the hard or soft palate. They are most common in the fourth to six decades of life. They are painless and soft to firm to palpation.

Oral and Maxillofacial Pathology, Neville, 1995. Pages 337-359

8. Nonsteroidal Anti-Inflammatory Agents (NSAID) can cause decreased effectiveness of ACE inhibitors, hydralazine, diuretics and other hypertensive medications. It may also decrease the effectiveness of anticoagulants (warafin and heparin).

- A. Both statements are true**
- B. Both statements are false**
- C. The first statement is true and the second is false**
- D. The first statement is false and the second statement is true**

The correct answer is C.

NSAIDs will increase the effectiveness of anticoagulants. NSAIDs may increase warafin's effect on INR and exacerbate the adverse renal effects of ACE inhibitors. It may increase risk of GI ulceration when used with corticosteroids. Lithium, methotrexate and cyclosporine levels may be increased. CYP2C8 and 2C9 enzyme substrate interactions can occur. Avoid ethanol intake. Pregnancy risk factor is C and D in the third trimester. It may be taken while breast-feeding. Peak serum concentration occurs 1-2 hours after ingestion. Contraindications are hypersensitivity to NSAIDs, aspirin or other NSAIDs.

NSAIDs are broken down in the kidneys.

NSAIDs inhibit prostaglandin formation by decreasing the cyclooxygenase.

CNS disruption, confusion, agitation, or hallucinations are seen with high doses.

Wynn, Miller and Crossley. Drug Information Handbook for Dentistry. Sixth Edition; 2000: 551-552.

9. Which of the following are true concerning traumatic bone cysts?

- 1. Generally the patient complains of a deep bone pain.**
- 2. Radiographically present as a well-demarcated radiopacity.**
- 3. Upon aspiration a thin serous fluid will be expressed.**
- 4. Easily confused with an apical periodontal cyst.**
- 5. Are best treated by surgical enucleation.**

- A. 1, 2, 3 are true**
- B. 3,4,5 are true**
- C. All are true**
- D. None are true**
- E. 1,3,5 are true.**

The answer is D.

Traumatic bone lesions (hemorrhagic or extravasation cysts) are localized areas of bone necrosis that are purported to result from intramedullary hematomas that do not become organized. The intraosseous hemorrhage is thought to be related to a traumatic incident. The bone lesions are discovered during a routine dental exam (not a pain related visit). They appear as a well-defined radiolucency most frequently near the apices of teeth but are NOT related to periapical inflammation. The teeth in the vicinity will test positive for vitality and thus be differentiated from apical periodontal cysts. Exposure of a traumatic bone cyst will reveal a DRY bony cavity with no cystic lining.

REFERENCE: Robinson's Color Atlas of Oral Pathology page 126.

10. WHICH OF THE FOLLOWING ARE TRUE CONCERNING HEPATITIS C?

- 1. Also called non-A, non-B Hepatitis. It is a viral infection.**
- 2. It is the most common chronic blood borne infection in the U.S.**
- 3. Responsible for 30,000 deaths per year or 30% of those infected.**
- 4. The causative agent=double stranded RNA, can modify and mutate within the host.**

- A. All the above are true.**
- B. 1,2,3 are true.**
- C. 3,4, are true**
- D 1,2,3,4 are true.**

The answer is A.

Also called non-A, non-B Hepatitis. It is a viral infection. It is the most common chronic blood borne infection in the US. Responsible for 30,000 deaths per year or 30% of those infected. The causative agent is a **SINGLE** stranded **RNA**, which can modify and mutate within the host.

REFERENCE: The Liver's Epidemiology Lecture, LCDR Outhouse, Hepatitis C (HCV) lecture by LCDR Carpenter. From Guyton, Textbook of Medical Physiology, 10th ed., Little, Dental Management of the Medically Compromised Patient 6th ed., Glick, Medical Considerations for Dental Care of Patients with Alcohol-Related Liver Disease: JADA Vol 128 Jan 1997.

11. Which of the following are true concerning Addison's disease?

- 1. Characterized by weight loss, muscle weakness, fatigue, low blood pressure, nausea, vomiting, diarrhea, and darkening of the skin in exposed and unexposed areas.**
 - 2. It occurs because the kidneys do not produce enough cortisol and aldosterone hormones.**
 - 3. Most cases-70%, are caused by the body's own immune system destroying the adrenal cortex. Tuberculosis is a secondary cause.**
 - 4. Type 1 occurs in children-hypoglycemia is common, Type 2-also called Schmidt's syndrome occurs in adults and may include vitiligo-loss of pigmentation on skin.**
 - 5. Addison's Disease can cause irritability and depression and craving of salty food is common.**
- A. All are true.**
 - B. 1,2,3 5 are true.**
 - C. 1,3,5 are true.**
 - D. 1,3,4,5, are true.**

The answer is D

#2 is False- cortisol and aldosterone are of course produced by the Adrenal Glands located just above the kidneys. 1,3,4,5 are TRUE.

Addisonian crisis is where a stressful event like an illness or an accident causes the symptoms to suddenly become much worse. It is also called an acute adrenal insufficiency. Symptoms would be 1. sudden penetrating pain in the lower back, abdomen or legs, 2. severe vomiting and diarrhea, followed by dehydration, 3. low blood pressure, 4. loss of consciousness. Treatment involves replacing or substituting cortisol and aldosterone if it is deficient. Crisis therapy would involve IV hydrocortisone, saline, and dextrose.

Resource: National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda MD, November 1998. Corrigan, Eileen K.

12. Which of the following statements is false regarding the disease, erythema multiforme?
- A. EM is seen most frequently in middle-aged females and older adults taking multiple medications.
 - B. EM has an acute onset.
 - C. EM simplex is a self-limiting form of the disease
 - D. Oral lesions commonly appear along with skin lesions in approximately 70% of EM patients
 - E. The pathognomonic lesion is the target lesion

The correct response is A. It is false; all other responses are true.

Below are explanations and amplifying information of the acute inflammatory immune mediated disease of the skin and mucous membranes:

- EM is seen most frequently in children and young adults and is rare after the age of 50 years.
- EM has an acute or explosive onset; generalized symptoms such as fever and malaise appear in severe cases.
- EM simplex is a self-limiting form of the disease and is characterized by macules and papules 0.5 to 2 cm in diameter, appearing in a symmetric distribution.
- The most common cutaneous areas involved are the hands, feet, and extensor surfaces of the elbows and knees. The face and neck are commonly involved. Only severe cases will affect the trunk. Oral lesions commonly appear along with skin lesions in approximately 70% of EM patients. The oral lesions may occasionally be the predominant form or single site of the disease. The oral lesions are an important part of the clinical picture. These lesions are usually rapidly rupturing vesicles and bullae.
- Typical skin lesions of EM are target lesions which are macules or papules with a central area of petechiae. Hence, the pathognomonic lesion is the target or iris lesion. A central bulla or pale clearing area will be surrounded by edema and bands of erythema.
- The more severe vesiculobullous forms of the disease, Stevens-Johnson syndrome and TEN have a high mortality rate. EM is classified as Stevens-Johnson syndrome when the generalized vesicles and bullae involve the skin, mouth, eyes, and genitals.
- The most severe form of the disease is TEN (toxic epidermal neurolysis), which is typically secondary to a drug reaction and results in sloughing of the skin and mucosa in large sheets. Morbidity occurs in 30-40% of patients and is due to secondary infection, fluid and electrolyte imbalance or involvement of the lung, kidneys or liver. These patients are managed best in burn centers. The necrotic skin is removed under general anesthesia. Xenografts may be used to allow healing of the tissues.

Reference:

Greenburg and Glick.: Burkett's Oral Medicine; BC Decker, Inc., 10th Ed., 2003.

13. Which one of the following is false regarding recurrent aphthous ulcers (RAU's)?
- A. The most common oral manifestation of Crohn's disease is RAU's.
 - B. Recurrent aphthous ulcerations (RAU's) are caused by the Coxsackie virus.
 - C. The three disease entities of RAU's are minor, major and herpetic.
 - D. Diagnosis is based upon clinical and histologic examination.
 - E. Major (recurrent) aphthous ulcerations are larger than 1.0 cm, minor ulcerations are smaller than 1.0 cm.

Correct answer is B. It is a false statement.

- Recurrent aphthous ulcerations (RAU's) are idiopathic ulcerations. Diagnosis of RAU's is of exclusion; the clinical impression may be confirmed with histologic examination and by response to treatment.
- The three disease entities of RAU's are minor, major and herpetiform.
- Minor (recurrent) aphthous ulcerations are smaller than 1.0 cm, well-circumscribed, round, may have a yellow-gray pseudomembrane, and surrounded by a erythematous halo. Differential diagnosis includes recurrent HSV infection. Treatment is focused to provide symptomatic relief. Analgesic mouth rinses: 2% - 4% viscous Lidocaine solution (10 ml swished and expectorated) is the most commonly used. Kenalog in Orabase may also be used.
- Major (recurrent) aphthous ulcerations are larger than 1.0 cm. They are well-circumscribed, round, and shallow or deep with indurated margins. A gray pseudo membrane covering the lesion may sometimes be present. They can occur anywhere on the oral mucosa. They are usually single ulcerations. In immunosuppressed individuals, groups of up to 10 lesions can be observed. These ulcers persist for more than 3 weeks and tend to heal with scar formation. In patients with HIV, major (recurrent) aphthous ulcerations have been associated with severe immune suppression, with CD4 counts below 100 cells/mm³, and are markers for HIV disease progression. Treatment for major (recurrent) aphthous ulcerations includes administrations of systemic corticosteroids. Topical formulations include: clobetasol or fluocinolide gel applied directly to the lesion, dexamethasone elixir mouth rinses (0.5 mg/5ml), and systemic administration of 60-80 mg of prednisone per day for 10 days have been used successfully. In steroid resistant patients, alternative therapy of 100-200 mg thalidomide may be used. It has severe side effects, but, has been used with some success to treat both oral and esophageal ulcerations. Refractory cases can be treated with colchicines or levamisole. Antibiotics and antifungal agents may also be used concurrently to prevent bacterial or fungal superinfections.
- Herpetiform ulcers are the least common type of aphthous ulcers; they are smaller than 1 mm, with perilesional erythema. They are found in batches of up to 100 on the nonkeratinized mucosa such as the ventral surface of the tongue and soft palate. Treatments are similar to those for minor RAU's: symptomatic relief, suppression of the local pathologic immune reaction, and treatment of concomitant superinfection.

Reference: Greenburg and Glick: *Burkett's Oral Medicine*; BC Decker, Inc., 10th Ed., 2003.

14. The vital sign that varies the least with odontogenic infections is:

- A. Respiratory rate
- B. Blood Pressure
- C. Pulse
- D. Temperature

Answer: B

Only if there is significant pain and anxiety will there be a mild elevation in systolic pressure.

Patients who have *systemic* involvement of infection will have elevated temperatures. Patients with severe infections will have temperatures elevated to 101° to 102°F.

Pulse rates of up to 100 beats per minute are not uncommon in patients with infections. **A patient with a pulse rate over 100 may have a severe infection and should be treated more aggressively.**

The normal respiratory rate is 14-16 breaths per minute. Patients with mild to moderate infections have elevated respiratory rates of up to 18-20 breaths per minute. As respirations are monitored, the dentist should carefully check to insure that the upper airway is clear and that breathing is without difficulty.

Oral and Maxillofacial Surgery, Peterson et al. pp 397-398

In addition, the medications used for the treatment of gastric and duodenal ulcers fall into three categories:

1. Gastric acid Secretion Inhibitor
-Prevacid, Prilosec, Protonix
2. Histamine H2 Antagonist
-Tagamet, Pepcid, Axid, Tirc(ranitidine), Zantac
3. Proton Pump inhibitors
-Prevacid, Prilosec, Protonix

The three P's are Proton Pump inhibitors *and* Gastric Acid Secretion Inhibitors.

Drug Information Handbook for Dentistry-Wynn et al. pp1136

17. From the choices below, identify the most common minor salivary gland malignant tumor.

- A. Pleomorphic adenoma**
- B. Adenocystic carcinoma**
- C. Midline lethal granuloma**
- D. Mucoepidermoid carcinoma**

The answer is B. Adenocystic carcinoma

The minor salivary glands in the oral cavity can sometimes develop malignant tumors. As a rule, tumors in the minor salivary glands have a greater tendency towards malignancy compared to tumors in the major salivary glands (parotid, submandibular and lingual). They are usually covered by mucosa and mainly found in the hard palate [9]. **Adenocystic carcinoma** dominates (50 %), followed by mucoepidemoid cancer while **pleomorphic adenoma** is a benign type of tumor that exists in only 10 per cent of the minor and in 85 per cent of the major salivary glands. Adenocystic carcinoma has a major recurrence tendency. Surgery entails resectioning of part of the soft and hard palate, which communicates directly with the nose or jaw cavities.

Mucocele is the most common lesion in the minor salivary glands with a prevalence of 0.1 per cent [3]. It is localized in the lips, mainly the lower lip and cheeks. It is not a real tumor, but rather mucus retention in one or several of the minor salivary glands in the lip mucosa. In the upper lip **adenomas** can be found, requiring fine-needle puncture to secure the diagnosis. The lesions are benign but often traumatized, e g when chewing or in connection with bad bite habits, and excision is recommended.

Neville, Damm, Allen, Bouquot. Oral and Maxilofacial Pathology 2nd Edition. Saunders 2002

18. Sialoliths are most often found in the?

- A. Parotid gland**
- B. Sublingual gland**
- C. Submandibular gland**
- D. Warton's duct**
- E. Stenson's duct**

The correct answer is C. Submandibular gland

Sialolith or salivary stone represents deposition of calcium salts around a central nidus of cellular debris and mucinous material. Trauma and bacterial or viral infections are among the most common causes.

Approximately 80% of all sialoliths affect major salivary glands and 75% of these are found in the submandibular gland.

Minor salivary gland sialolithiasis is mostly found in the upper lip and buccal mucosa. Many sialoliths can be removed by manual manipulation of the stone through the ductal orifice.

*Neville, Damm, Allen, Bouquot. Oral and Maxillofacial Pathology 2nd Edition
Saunders Publishing Co. 2002*

19. Which of the following is not contraindicated for use in an asthmatic patient?

- A. Penicillin**
- B. Nitrous Oxide**
- C. Aspirin**
- D. Naproxin Sodium**
- E. 2% Lidocaine with 1/100K levonordeferin**

The correct answer is B. Nitrous oxide

Drugs that might be implicated in precipitation of asthmatic episodes should be avoided, such as Aspirin, NSAIDs, penicillin, and bisulfites. The prevalence of aspirin sensitivity in asthmatics ranges up to 19%. The NSAIDs include indomethacin, fenoprofen, naproxin, ibuprofen, mefenamic acid, sulindac, meclofenamate, tolmetin, piroxicam, oxyphenbutazone, and phenylbutazone.

Sodium metabisulfate, an antioxidant in certain medications, has been known to cause attacks. Although the volume in dental local anesthetics containing vasoconstrictors is minimal, reactions have been noted. LA without vasoconstrictors should be used.

Barbiturates sensitize the respiratory reflexes and increase the risk of bronchospasms. Narcotics provoke histamine release and increase the risk of bronchospasm.

Both drug groups are contraindicated in the asthmatic patient.

Inhalation sedation with nitrous oxide and oxygen, oral sedation with benzodiazepines, and IV or IM routes are not contraindicated in asthmatics.

Malamed, S.F., Medical Emergencies in the Dental Office, Mosby 1993, pages 197-198

20. Which of the following reversal agents would you administer to a patient who has been overly medicated with a narcotic analgesic?

- A. Mazicon**
- B. Sodium bicarbonate**
- C. Narcan**
- D. Epinephrine**

Answer is C. Narcan

There are four categories of injectable drugs used for the management of emergency situations that arise in response to the administration of drugs used primarily for sedation or general anesthesia. The antidotal drugs are:

<i>Category</i>	<i>Generic drug</i>	<i>Dosing</i>	<i>Trade name</i>
Narcotic antagonist	Nalaxone	0.4mg/mL	Narcan - Nambuphine
Benzodiazepine	Flumazenil	0.1mg/mL	Mazicon
Antiemergence delirium	Physostigmine	1mg/mL	Antilirium
Vasodialtor	Procaine	2-6mL	Novocaine

The most significant side affect of parenternally administered narcotic agonist is their ability to produce respiratory depression by diminishing the responsiveness of the respiratory centers of the brain to the arterial carbon dioxide level. Duration of action of Nalaxone is 30 minutes. It is common to give a patient IM dose to assist

Although the benzos have been described as the nearly the most ideal agents for anxiety control and sedation, there are still a number of adverse reactions associated with their administration. Flumazenil is recommended to be available whenever diazepam, midazolam, or lorazepam is administered.

Drugs that induce sedation have the ability to produce what is knows as emergence delirium a phenomenon in which the patient appears to lose contact with reality and speech is unintelligible. This has the potential to occur with the use of scopolamine and benzodiazepines. Side affects are hypersalivation, emesis, urination, defecation, bradycardia. (Atropine should be available as an antagonist.) Physostigmine should not be administered to pts with asthma, diabetes, cardiovascular disease, GI or GU obstructs.

Vasodilators are used in the management of vasospasm and compromised circulation following accidental intraarterial injection of medications or extravascular administration of an irritating agent.

Malamed, S.F., Medical Emergencies in the Dental Office, Mosby1993, pages 87-88