Postoperative Patient Management



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CHAPTER OUTLINE

CONTROL OF POSTOPERATIVE BLEEDING
CONTROL OF POSTOPERATIVE PAIN AND DISCOMFORT
- Diet
- Oral Hygiene
- Edema
- Control of Infection
- Trismus
- Ecchymosis

POSTOPERATIVE FOLLOW-UP VISIT
OPERATIVE NOTE FOR THE RECORDS

Once the surgical procedure has been completed, patients should be given proper instructions on how to care for themselves for the remainder of the day of surgery and for a few days afterward. If the patient is to receive intravenous (IV) sedation, the postoperative management instructions must be discussed before the sedation is given. These instructions should also be repeated to the patient's escort before discharge from the office.

Postoperative instructions should predict what the patient is likely to experience, explain why these phenomena occur, and tell the patient how to manage and control the typical postoperative sequelae. The instructions must be given to the patient verbally and on a written sheet. The instruction sheet should describe the typical problems and their management. It should also include a phone number at which the surgeon can be reached in an emergency. The language must be clear and simple enough to be followed by all patients. A typical postoperative instruction sheet is found in Appendix V.

This chapter discusses common postoperative problems and methods of controlling them.

CONTROL OF POSTOPERATIVE BLEEDING

Once an extraction has been completed, the initial maneuver to control postoperative bleeding is the placement of a small, damp gauze pack directly over the empty socket. Large packs that cover the occlusal surfaces of the teeth do not apply pressure to the bleeding socket and should not be used (Fig. 10-1). The gauze should be moistened so that the oozing blood does not coagulate in the gauze and then dislodge the clot when the gauze is removed. The patient should be instructed to bite firmly on this gauze for at least

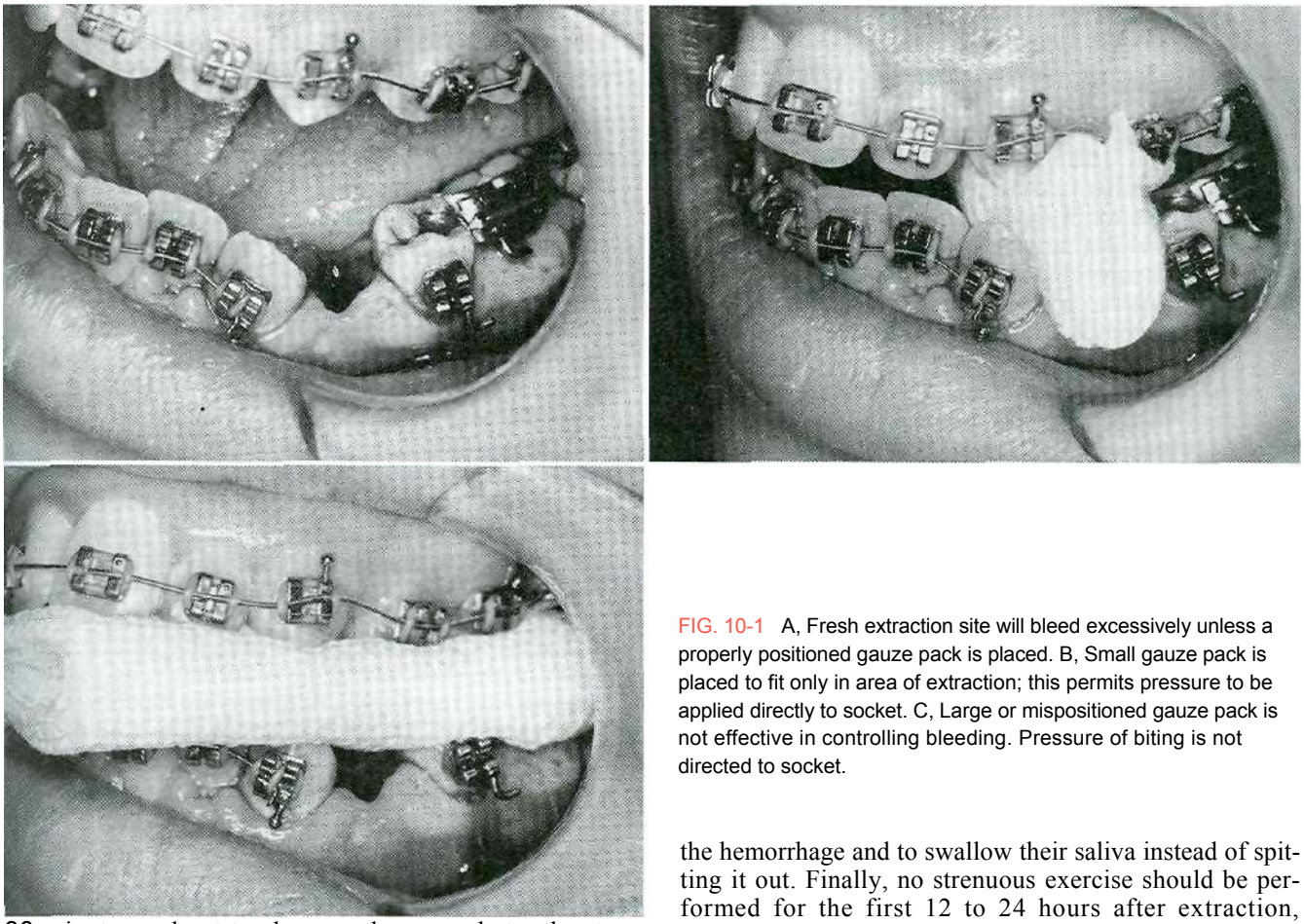


FIG. 10-1 A, Fresh extraction site will bleed excessively unless a properly positioned gauze pack is placed. B, Small gauze pack is placed to fit only in area of extraction; this permits pressure to be applied directly to socket. C, Large or mispositioned gauze pack is not effective in controlling bleeding. Pressure of biting is not directed to socket.

30 minutes and not to chew on the gauze but rather to hold it without opening or closing the mouth. Talking should be kept to a minimum for 3 or 4 hours.

Patients should be informed that it is normal for a tooth socket to ooze slightly for 24 hours after the extraction procedure. They should be warned that a small amount of blood and a large amount of saliva would appear to be a large amount of blood. If the bleeding is more than a slight ooze, the patient should be instructed on how to reapply a small, damp gauze pack directly over the area of the extraction. The patient should be instructed to hold this second gauze pack in place for as long as 1 hour to gain control of bleeding.

Patients should be cautioned about things that may aggravate the bleeding and therefore be avoided. Patients who smoke should be encouraged to avoid smoking for the first 12 hours or, more commonly, if they must smoke, to draw on the cigarette very lightly. The negative pressure created by this suction in the mouth may promote bleeding and should be discouraged. The patient should be told not to suck on a straw when drinking; this also creates negative pressure. The patient should be advised not to spit during the first 12 hours after surgery. The process of spitting involves negative pressure and mechanical agitation of the extraction, which may prolong bleeding. Patients who object to having blood in the mouth should be encouraged to bite firmly on a piece of gauze to control the hemorrhage and to swallow their saliva instead of spitting it out. Finally, no strenuous exercise should be performed for the first 12 to 24 hours after extraction, because the increased circulation may result in bleeding.

Patients should be warned that there may be some oozing during the night and that they will probably have some blood on their pillows. This will prevent many frantic telephone calls to the surgeon in the middle of the night.

Patients should also be instructed that if they are worried about their bleeding, they should call the dentist to get additional advice. Prolonged bleeding, bright red bleeding, or large clots in the patient's mouth are all indications for a return visit. The dentist should then examine the area closely and apply appropriate measures to control the bleeding (see Chapter 11).

CONTROL OF POSTOPERATIVE PAIN AND DISCOMFORT

All patients expect a certain amount of pain after a surgical procedure, so it is important for the dentist to discuss this issue carefully with each patient before discharge from the office. The surgeon must help the patient have a realistic expectation of what type of pain may occur. The surgeon must therefore pay attention to the patient's concerns and preconceived ideas of how much pain is likely to occur.

Patients who tell the surgeon that they expect a great deal of pain after surgery should not be ignored and told to take an aspirin if it hurts, because these are the patients most likely to experience pain postoperatively. It is important for the surgeon to assure patients, especially the latter group, that their postoperative pain can be effectively managed.

The pain a patient may experience after a surgical procedure, such as tooth extraction, is highly variable and depends a great deal on the patient's preoperative frame of mind. The surgeon who spends several minutes discussing these issues with the patient before surgery will be able to recommend the most appropriate medication.

All patients should be given advice concerning analgesics before they are discharged. Even when the surgeon believes that no prescription analgesics are necessary, the patient should be told to take aspirin or acetaminophen postoperatively to prevent initial discomfort when the effect of the local anesthetic disappears. Patients who are expected to have a higher level of pain should he given prescriptions for analgesics that will control the pain. The surgeon should also take care to advise the patient that the goal of analgesic medication is management of pain and not elimination of all soreness.

The surgeon must understand the three characteristics of the pain that occurs after tooth extraction. First, it is usually not severe and can be managed in most patients with mild analgesics. Second, the peak pain experience occurs about 12 hours after the extraction and diminish-es rapidly after that. Finally, the pain from extraction rarely persists longer than 2 days after surgery. With these factors kept in mind, patients can best be advised regarding the effective use of analgesics.

The first dose of analgesic medication should be taken before the effect of the local anesthetic subsides. If this is done, the patient will not experience the intense, sharp pain after the loss of the local anesthesia. By preventing the sudden onset of surgical pain, the subsequent control of it is more easily and predictably achieved with mild analgesics. Postoperative pain is much more difficult to overcome if administration of analgesic medication is delayed. If the patient waits to take the first dose of analgesic until the effects of the local anesthesia have disappeared, it will take up to 90 minutes for the analgesic to become effective. During this time, the patient is likely to become impatient and take additional medication that will increase the chance of nausea and vomiting.

The strength of the analgesic is also of importance. Potent analgesics are not required in most extraction situations; instead, analgesics with a lower potency per dose are effective. The patient can then be told to take one, two, or three tablets as necessary to control pain. By allowing the patient to assume an active role in determining the amount of medication to take, a more precise and realistic control can be achieved.

Patients should be warned that taking too much of the medication will result in drowsiness and an increased chance of an upset stomach. In most situations, patients should take medication with some type of food to decrease its irritating effect on the stomach.

Aspirin has been demonstrated to be an effective medication to control the pain and discomfort of a tooth extraction. This drug works primarily peripherally, interfering with prostaglandin synthesis. If the surgeon prescribes a combination drug of aspirin and narcotic, it should be a combination that delivers 500 to 1000 mg of aspirin per dose. If the patient cannot tolerate aspirin, acetaminophen in a similar dose is a good alternative drug. Aspirin has the disadvantage of causing a decrease in platelet aggregation and bleeding time, but this does not appear to have a clinically important effect on postoperative bleeding. Acetaminophen does not interfere with platelet function at all, and it may be useful in certain situations where the patient has a platelet defect and is likely to bleed. Aspirin remains the drug of choice for control of mild-to-moderate pain after tooth extraction.

Nonsteroidal antiinflammatory analgesics (NSAIDs), such as ibuprofen, are also useful for patients who have had a tooth extraction. Well-controlled studies have documented their effectiveness. They are effective for mild-to-moderate pain. A subcategory of NSAIDs, COX-2 inhibitors, causes less irritation of the gastric mucus, has less effect on platelet function, and may provide for longer periods of analgesia. They may be useful in the management of postoperative pain that is expected to last for more than several days. Currently, no published data indicates that COX-2 inhibitors are superior to other NSAIDs in the control of routine postextraction pain.

Drugs useful in situations with varying degrees of pain are listed in Table 10-1. Centrally acting analgesics are also frequently used to control pain after tooth extraction. The most commonly used drugs are codeine and the codeine congeners such as oxycodone, hydrocodone, and dihydrocodeine. These narcotics are well absorbed from the gut; when used in equipotent doses, they produce similar pain relief, drowsiness, and gastrointestinal upset, They are rarely used alone; instead, they are formulated with other analgesics, primarily aspirin or acetaminophen. When codeine is used, the amount of codeine is frequently designated by a numbering system. Compounds labeled no. 1 have 7.5 mg of codeine; no. 2, 15 mg; no. 3, 30 mg; and no. 4, 60 mg.

When a combination of analgesic drugs is used, the dentist must keep in mind that it is necessary to provide 500 to 1000 mg of aspirin or acetaminophen every 6 hours to achieve maximal effectiveness from the nonnarcotic. Many of the compound drugs have only 300 mg of aspirin or acetaminophen added to the narcotic. An example of a rational approach would be to prescribe a compound containing 300 mg of aspirin and 15 mg of codeine (no. 2). The usual adult dose would be two tablets of this compound every 4 hours. This two-tablet (30 mg of codeine and 600 mg of aspirin) dose provides a nearly ideal analgesia. Should the patient require stronger analgesic action, three tablets can be taken with increased effectiveness of both aspirin and codeine. Doses that supply 30 or 60 mg of codeine but only 300 mg of aspirin fail to take advantage of aspirin's analgesic effect (Table 10-2).

Other drugs that can be used as analgesics that produce effects centrally are pentazocine, meperidine, and hydromorphone. Pentazocine and meperidine are useful but definitely second-choice drugs compared with the aspirin and codeine combination.

TABLE 10-1

Analgesics for Postextraction Pain

Oral Narcotic	Usual Dose
MILD PAIN SITUATIONS	
Aspirin	500-1000 mg q4h
Acetaminophen	500-1000 mg q4h
MODERATE PAIN SITUATIONS	
Ibuprofen and other NSAIDs	400-800 mg q4h
Codeine	30-60 mg
	With aspirin (500 mg)
	With acetaminophen (500 mg)
Propoxyphene	100 mg
	With acetaminophen (500 mg)
SEVERE PAIN SITUATIONS	
Oxycodone	5-10 mg
	With aspirin (500 mg)
	With acetaminophen (500 mg)
Hydrocodone	5-10 mg
	With aspirin (500 mg)
	With acetaminophen (500 mg)

TABLE 10-2

Commonly Used Combination Analgesics

Brand Name	Amount (mg)	Amount (mg)
Codeine-aspirin	*Codeine*	*Aspirin*
Empirin compound		
No. 3	30.0	325
No. 4	60.0	325
Codeine-acetaminophen	*Codeine*	*Acetaminophen*
Tylenol		
No. 2	15.0	300
No. 3	30.0	300
No. 4	60.0	300
Oxycodone-aspirin	*Oxycodone*	*Aspirin*
Percodan	5.0	325
Percodan-Demi	2.5	25
Oxycodone-acetaminophen	*Oxycodone*	*Acetaminophen*
Percocet	2.5	325
	5.0	325
	7.5	500
	10.0	650
Tylox	5.0	500
Hydrocodone-aspirin	*Hydrocodone*	*Aspirin*
Lortab ASA	5.0	500
Hydrocodone-acetaminophen	*Hydrocodone*	*Acetaminophen*
Vicodin	5.0	500
Vicodine ES	7.5	750
Lorcet HD	5.0	500
Lorcet Plus	7.5	650
Lorcet 10/650	10.0	650
Lortab 2.5/500	2.5	500
Lortab 5/500	5.0	500
Lortab Elixir	2.5 mg/5 ml	170 mg/5 ml
Hydrocodone-ibuprofen	*Hydrocodone*	*Ibuprofen*
Vicoprofen	7.5	200
Dihydrocodeine-aspirin	*Dihydrocodeine*	*Aspirin*
Synalgos-DC*	16.0	350
Propoxyphene-acetaminophen	*Propoxyphene*	*Acetaminophen*
Darvocet N-1000	100	650

*Also contains caffeine.

The Drug Enforcement Administration (DEA) controls narcotic analgesics. To write prescriptions for these drugs, the dentist must have a DEA permit and number. The drugs are categorized into four basic schedules based on their liability for abuse. Several important differences exist between Schedule II and Schedule III drugs concerning writing prescriptions (see Appendix III).

It is important to emphasize that the most effective method of controlling pain is to build a close relationship between surgeon and patient. Specific time must be spent discussing the issue of postoperative discomfort, with concern clearly expressed by the surgeon. Prescriptions should be given with clear instructions about when to begin the medication and how to take it at each interval. If these procedures are followed, mild analgesics given for a short time (usually no longer than 2 to 3 days) will be all that is required.

Diet

Patients who have had extractions may avoid eating because of local pain or fear of pain when eating. Therefore they should be given very specific instructions regarding their postoperative diet. A high-calorie, high-volume liquid diet is best for the first 12 to 24 hours.

The patient must have an adequate intake of fluids, usually at least 2 quarts, during the first 24 hours. The fluids can be juices, milk, water, or any other beverage that appeals to the patient.

Food in the first 12 hours should be soft and cool. Cool and cold foods help keep the local area comfortable. Ice cream and milkshakes, unlike solid foods, tend not to cause local trauma or initiate rebleeding episodes.

If the patient had multiple extractions in all areas of the mouth, a soft diet is recommended for several days after the surgical procedure. In most situations, patients have surgery only in an isolated quadrant or half of the mouth, which leaves the opposite side free to chew. The patient should be advised to return to a normal diet as soon as possible.

Patients who are diabetic should be encouraged to return to their normal insulin and diet routine as soon as possible. For such patients the surgeon should plan sur-

gery in only one side of the mouth at each surgical sitting, thereby not interfering with the normal dietary intake.

Oral Hygiene

Patients should be advised that keeping the teeth and mouth reasonably clean results in a more rapid healing of their surgical wounds. On the day of surgery patients can gently brush the teeth that are away from the area of surgery in the usual fashion. They should avoid brushing the teeth immediately adjacent to the extraction site to prevent a new bleeding episode and to avoid pain.

The next day, patients should begin gentle rinses with warm water. The water should be warm but not hot enough to burn the tissue. Most patients can resume pre-operative oral hygienic methods by the third or fourth day after surgery. Dental floss should be used in the usual fashion on teeth anterior and posterior to the extraction sites as soon as the patient is comfortable enough to do so.

If oral hygiene is likely to be compromised after extractions in multiple areas of the mouth, local antibiotic mouth rinses with agents such as chlorhexidine may be used. Twice-daily rinses for approximately 1 week after surgery may result in more rapid healing.

Edema

Most surgical procedures result in a certain amount of edema or swelling after surgery. Simple extraction of a single tooth will probably not result in swelling that the patient can see, whereas the extraction of multiple impacted teeth with reflection of soft tissue and removal of bone may result in large amounts of swelling (Fig. 10-2). Swelling usually reaches its maximum 24 to 88 hours after the surgical procedure. It begins to subside on the third or fourth day and is usually resolved by the end of the first week. Increased swelling after the third day may be an indication of infection rather than postsurgical edema.

Once the surgery is completed and the patient is ready to be discharged, application of ice packs to the area may help minimize the swelling and make the patient feel more comfortable; it also allows patients to play a role in their postsurgical care. Ice should not be placed directly on the skin, but rather a layer of dry cloth should be placed between the ice container and the tissue to prevent superficial tissue damage.

The ice bag should be kept on the local area for 20 minutes and then left off for 20 minutes. Ice pack application should be maintained for no more than 24 hours, because longer application does not help. Ice packs are only minimally effective in controlling edema. Some surgeons prefer the intraoral application of ice. This can be accomplished by having the patient hold ice chips in the mouth or by sucking on a flavored Popsicle.

On the second postoperative day, neither ice nor heat should be applied to the face. On the third and subsequent postoperative days, application of heat may help to resolve the swelling more quickly. Heat sources such as hot water bottles and heating pads are recommended. Patients should be warned to avoid high-level heat for long periods to keep from burning or injuring the skin.

It is most important that patients anticipate some amount of swelling. They should also be warned that the swelling may tend to wax and wane, occurring more in the morning and less in the evening because of postural variation. Patients should be informed that a moderate amount of swelling is a normal and healthy reaction of the tissue to the trauma of surgery. They should not be concerned or frightened by it, because it will resolve within a few days.

Control of Infection

To control infection the surgeon must carefully adhere to the principles of surgery. No other special measures must be taken with the average patient. However, some patients, especially those with depressed host-defense responses, may require antibiotics to prevent infection. Antibiotics in these patients should be administered before the surgical procedure is begun (see Chapter 15).

Additional antibiotics after the surgery are usually not necessary. A surgeon who decides to give additional antibiotics must carefully discuss the timing of administration with the patient so that a clear understanding is reached.

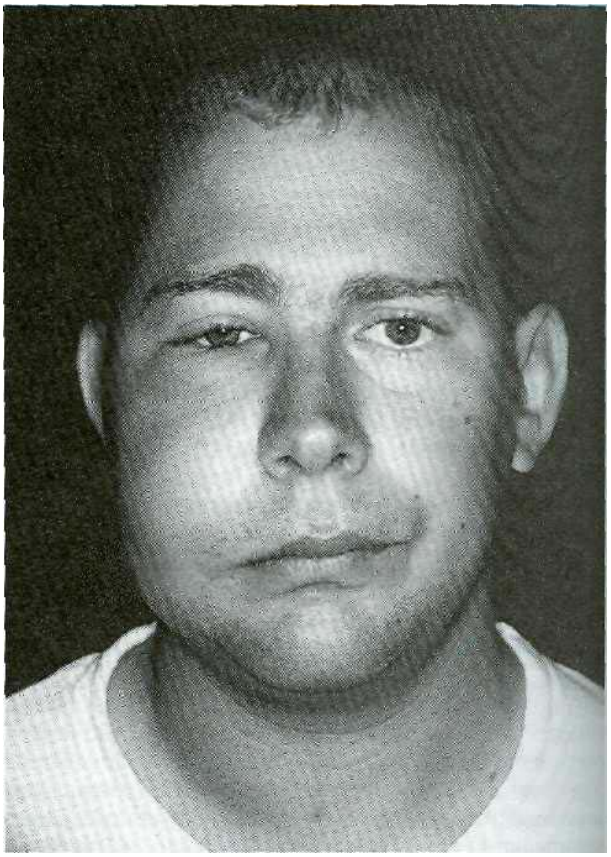


FIG. 10-2 Extraction of impacted right maxillary and mandibular third molars was performed 2 days before this photograph was taken. Patient exhibits moderate amount of facial edema, which will resolve within 1 week of surgery.

Trismus

Extraction of teeth may result in trismus, or limitation in opening the mouth. This is the result of inflammation involving the muscles of mastication. The trismus may be a result of multiple injections of local anesthetic, especially if the injections have penetrated muscles. The muscle most likely to be involved is the medial pterygoid muscle, which may be inadvertently penetrated by the local anesthetic needle during the inferior alveolar nerve block.

Surgical extraction of impacted mandibular third molars frequently results in trismus, because the inflammatory response to the surgical procedure is sufficiently widespread to involve several muscles of mastication. Trismus usually *is* not severe and does not hamper the patient's activity. However, to prevent alarm, patients should be warned that this phenomenon might occur.

The application of heat may be helpful in helping to resolve persistent trismus and swelling. It is clear that for maximum effectiveness, the application of heat must be by use of moist heat. Because of the closer contact with the skin, heat transfer to the tissue is most effective when the heat source is from a wet surface.

Ecchymosis

In some patients blood oozes submucosally (SM) and subcutaneously (SC), which appears as a bruise in the oral tissues on the face (Fig. 10-3). Blood in the subcutaneous tissues is known as *ecchymosis.* This is usually seen in older patients because of their decreased tissue tone and weaker intercellular attachment. Ecchymosis is not dangerous and does not increase pain or infection. Patients, howev-

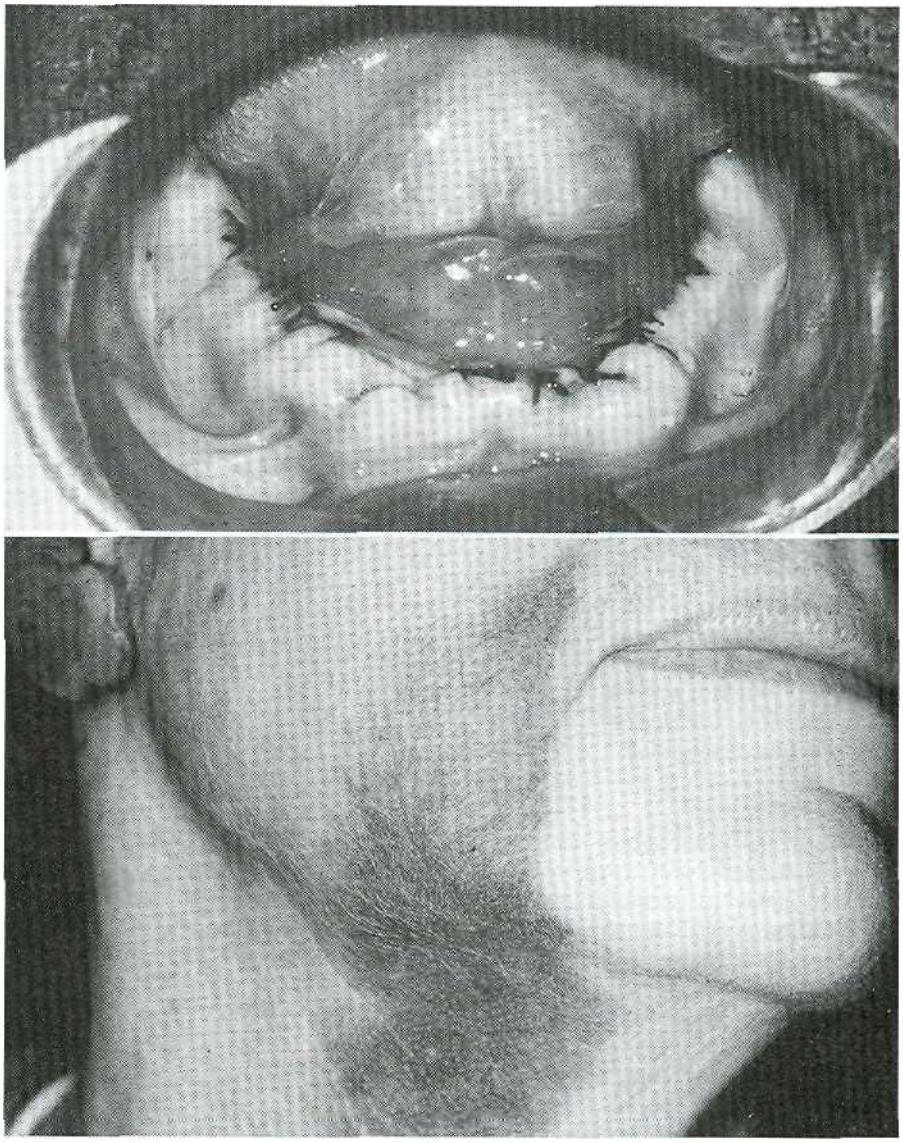


FIG.10-3 **A**, Moderate ecchymosis of floor of mouth, which was evident at time of suture removal on sixth day after multiple extractions, is demonstrated. **B**, Moderate widespread ecchymosis of right side of face and neck is exhibited in an older patient after extraction of several mandibular teeth.

er, should be warned that ecchymosis may occur, because if they awaken on the second postoperative day and see bruising in the cheek or submandibular area, they may become very apprehensive about their progress. This anxiety is easily preventable by postoperative instructions. Typically the onset of ecchymosis is 2 to 4 days after surgery and usually resolves with 7 to 10 days.

POSTOPERATIVE FOLLOW-UP VISIT

All patients should be given a return appointment so that the surgeon can check the patient's progress after the surgery. In routine, uncomplicated procedures, a follow-up visit at 1 week is usually adequate. If sutures are to be removed, that can be done at the 1-week postoperative appointment.

Moreover, patients should be informed that should any question or problem arise, they should call the dentist and request an earlier follow-up visit. The most likely reasons for an earlier visit are prolonged and bothersome bleeding, pain that is not responsive to the prescribed medication, and infection.

If a patient who has had surgery begins to develop swelling with surface redness and pain on the third postoperative day or later, the patient can be assumed to have developed an infection until this is proven otherwise. The patient should be instructed to call for an appointment at the dentist's office as soon as possible. The surgeon must then inspect the patient carefully to confirm or rule out the diagnosis of infection. If an infection is diagnosed, appropriate therapeutic measures should be taken (see Chapter 15).

Postsurgical pain that decreases at first but on the third or fourth day begins to increase, yet is accompanied by no swelling or other signs of infection, is probably a sign of "dry socket." This annoying problem is simple to manage but requires that the patient return to the office several times (see Chapter 11).

It is important that the patient know that the dentist is available to answer any postoperative questions and treat any postoperative problems that arise. Even if a postoperative follow-up visit does not appear to be necessary, one should be made to give the patient an opportunity to discuss any postoperative sequelae.

OPERATIVE NOTE FOR THE RECORDS

The surgeon must enter into the records a note of what transpired during each visit. Some critical factors must be entered into the chart. The first is the date of the operation and a brief identification of the patient; then the surgeon states the diagnosis and reason for the extraction (e.g., nonrestorable caries or severe periodontal disease). Comments regarding the patient's pertinent medical history, medications, and vital signs should be mentioned next in the chart. This information should be noted in the chart before the surgery is performed, to confirm that the dentist has reviewed these issues with the patient and that the patient's current status is satisfactory for the surgical procedure.

A brief mention should be made of the oral examination. During any routine long-term care of a patient, the dentist should examine the soft tissues of the face, mouth, and upper neck periodically. If this is done at the time of surgery, it should be noted in the chart.

The surgeon should enter into the chart the type and amount of anesthetic used and the technique that was chosen for injection. For example, if the drug were lidocaine with a vasoconstrictor, the dentist would write down the number of milligrams of lidocaine and of epinephrine. If the inferior alveolar nerve block technique were used, that would be indicated in this portion of the note, as would any use of nitrous oxide or IV sedation.

The surgeon should then write a brief note concerning the procedure that was performed, which should include a description of surgery and any complications. A description of the patient's tolerance of the procedure should also be included.

A comment concerning the discharge instructions, including mention of the postoperative instruction list that was given to the patient, is recorded.

The prescribed medications are listed, including the name of the drug, its dose, and the total number of tablets. Finally, the date of the return appointment is recorded in the chart (Box 10-1). (See Appendix II.)

BOX 10-1

Elements of an Operative Note

1. Date
2. Patient name and identification
3. Diagnosis
4. Review of medical history, medications, and vital signs
5. Oral examination
6. Anesthesia (amount and type of block technique used)
7. Procedure (including description of surgery and complications)
8. Discharge instructions
9. Medications prescribed and their amounts
10. Return appointment (date and time)
11. Signature (legible or printed underneath)

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