An Overview of Head Injury Management

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- Causes
  - Motor vehicle accidents
  - Firearm-related injuries
  - Falls
  - Assaults
  - Sports-related injuries
  - Recreational accidents

ارزیابی بیمار

1;Airway

2;Brething

3;Circulatory

4;معاینه فیزیکی

5;IMAGING

AIRWAY

-اهمیت در جلو گیریی از اسیب ثانویه
-اندیکاسیون اینتوباسیون
-جلوگیری از اسیب گردنی
-

BRETHING

-اهمیت در جلوگیری از اسیب ثانویه

-ABG

-مشاوره جراحی

-مشاوره بیهوشی

CIRCULATORY

- -جلوگیری از خونریزی فعال
- -سرم تراپی
- -جلوگیری از هیپوتانسیون
- -مشاوره جراحی

معاینه فیزیکی

- GCS-
- مردمکها-
- معاینه عصبی-

GCS

TABLE 324-1 ■ **Scoring System of the Glasgow Coma Scale**

TEST	SCORE
Eye Opening (E)	
Spontaneous	4
To verbal command	3
To pain	2
None	1
Best Motor Response (M)	
Obeys commands	6
Localization of painful stimulus	5
Flexion-withdrawal response to pain	4
Abnormal flexion response to pain (decorticate rigidity)	3
Extension response to pain (decerebrate rigidity)	2
None	1
Best Verbal Response (V)	
Oriented conversation	5
Disoriented conversation	4
Inappropriate words	3
Incomprehensible sounds	2
None	1
Maximum Score (E + M + V)	15

- اهمیت جزئ حرکت
- GCSدر بیماران نخاعی
- زمان
- اهمیت در تعیین شدت تروما

شدت تروما

TABLE 324-2 ■ Head Injury Severity Scale

INJURY CATEGORY	GCS SCORE
Minimal	15, no loss of consciousness (LOC) or amnesia
Mild	14, or 15 plus amnesia or brief LOC or impaired alertness or memory
Moderate	9–13 or LOC ≥5 min or focal neurological deficit
Severe	5–8
Critical	3–4

Adapted from Stein S: Classification of head injury. In Narayan RK, Wilberger JE, Povlishock JT (eds): Neurotrauma. New York, McGraw-Hill, 1996, pp 31–41.

مردمکها

- -سایز مردمک :محل ضایعه.انیزوکوریا
- -پاسخ به نور

معاینه عصبی

- اعصاب کرانیال
- معاینه ستون فقرات

IMAGING

- اندیکاسیون CT
- گرافیهای معمول

اندیکاسیون CTاسکن

Indications for Obtaining a Computed Tomographic Scan

Following are some of the different recommendations for performing CT:

1. GCS score of 13, 14, or 15 with an abnormal mental status.[58]
2. GCS score of 15 with skull fracture at any age.[43, 71, 103]
3. GCS score of 13, 14, or 15 with LOC.[23, 34, 46, 62]
4. Mandatory for patients with GCS score of 13.[44]
5. Any one or more of the following: (a) focal neurological deficits; (b) basilar skull fracture; (c) scalp injury; (d) age older than 60 years.[60]
6. GCS score of 13, 14, or 15 in adults with skull fracture.[28, 38, 57]
7. GCS score of 15 if one of the following is present: nausea, vomiting, headache, clinical signs of depressed skull fracture,[37, 41] short memory deficits, intoxication, age older than 60 years, trauma above the clavicles.[7]
8. Only in the case of clinical deterioration.[40, 59]

انواع اسیبها

- اولیه
- ثانویه :ادم مغزی-اسیب سلولی
- بیشترین اقدامات جهت کاهش اسیب ثانویه میباشد :هیپوکسی-هیپوتانسیون –انمی-تب-هیپرگلیسمی-افزایش فشار مغز

انواع تروما

TABLE 324-3 ■ Focal versus Diffuse Injury

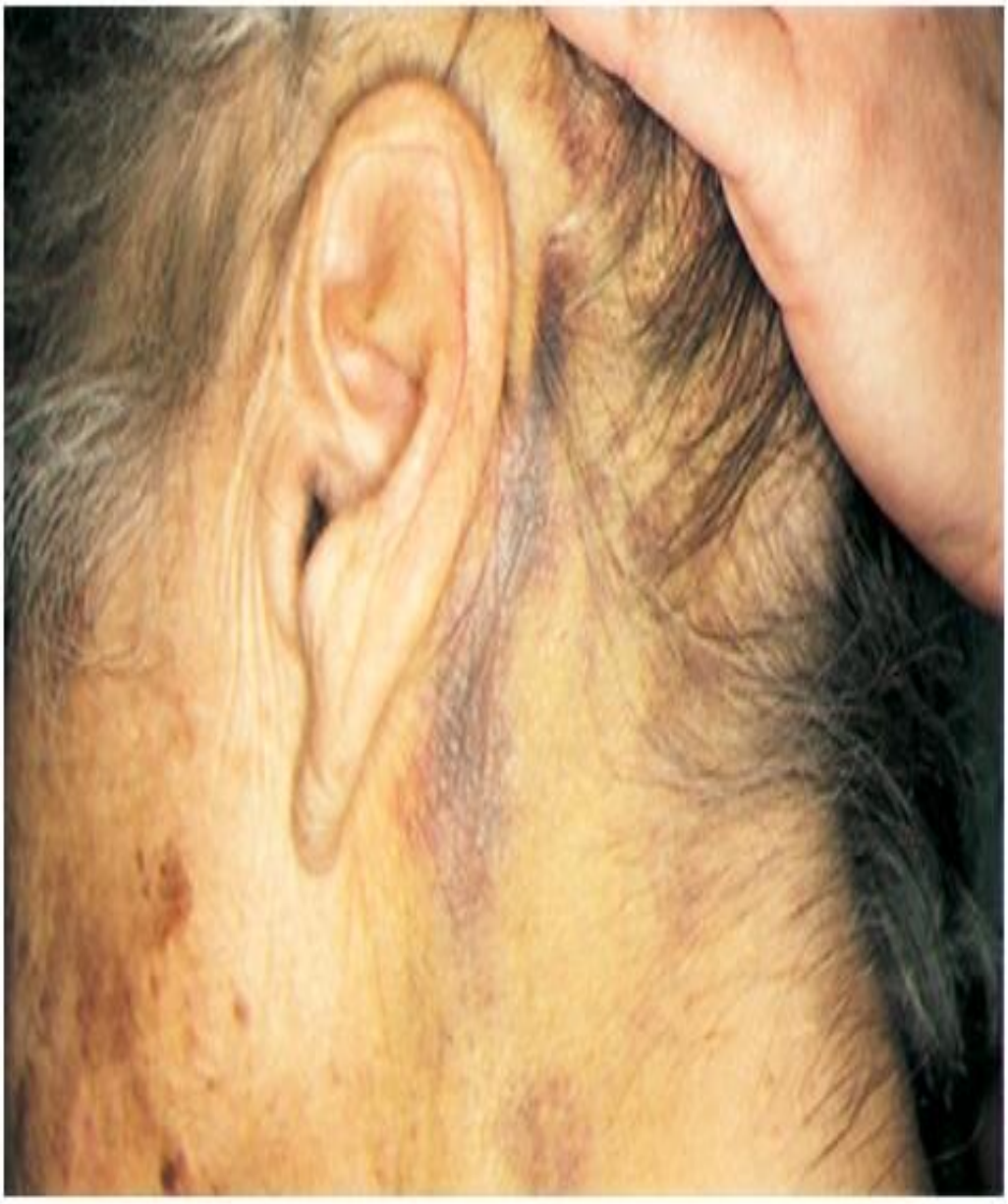
FOCAL INJURIES	DIFFUSE INJURIES
Contusions	Concussion
Fracture	Diffuse axonal injury
Coup	Moderate
Contrecoup	Severe
Herniation	
Intermediate	
Gliding	
Hematomas	
Epidural	
Subdural	
Intracerebral	

- **Scalp lacerations**
  - The most minor type of head trauma
  - Scalp is highly vascular → profuse bleeding
  - Major complication is infection

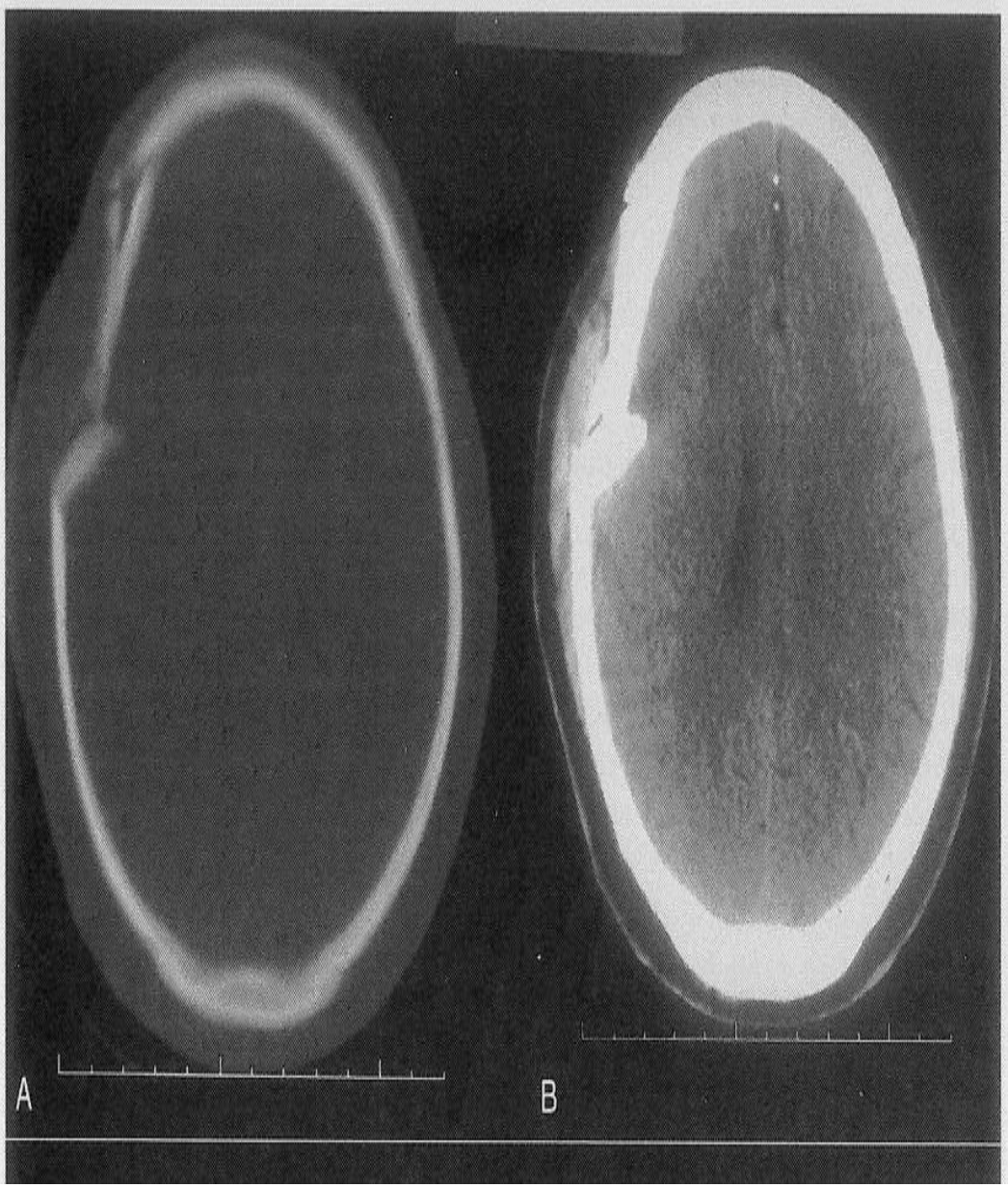
BASE SKULL FX

- Csf لیک
- RACONS EYE
- BATTEL SIGN

Battle's Sign

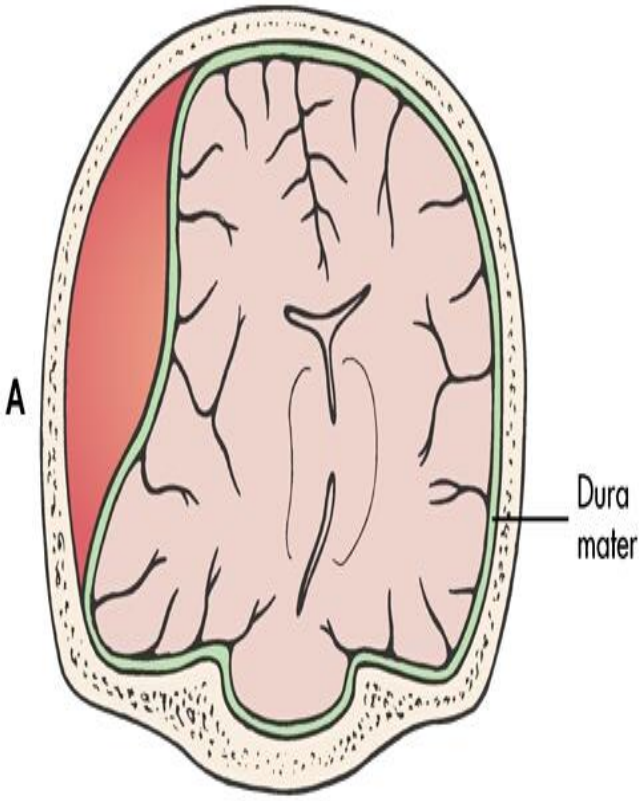


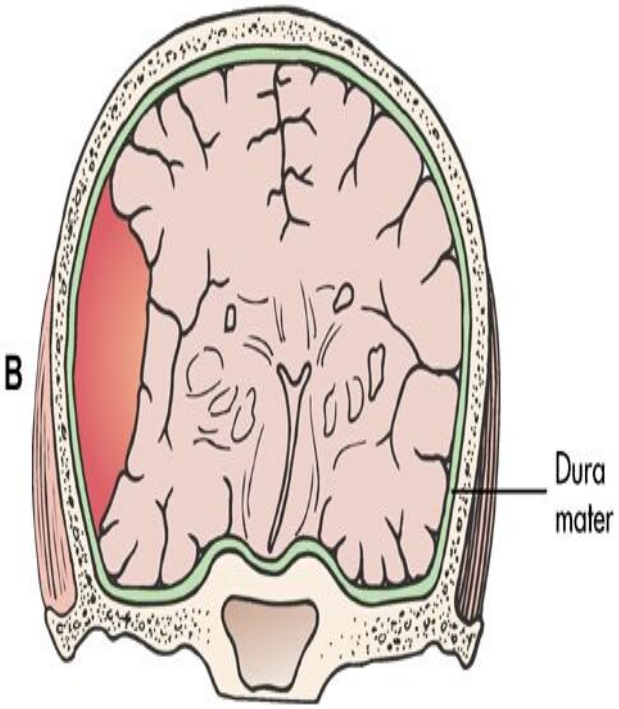
From Bingham BJG, Hawke M, Kwok P: *Clinical atlas of otolaryngology*, St. Louis, 1992, Mosby.


A
B

Epidural and Subdural Hematomas

Epidural Hematoma

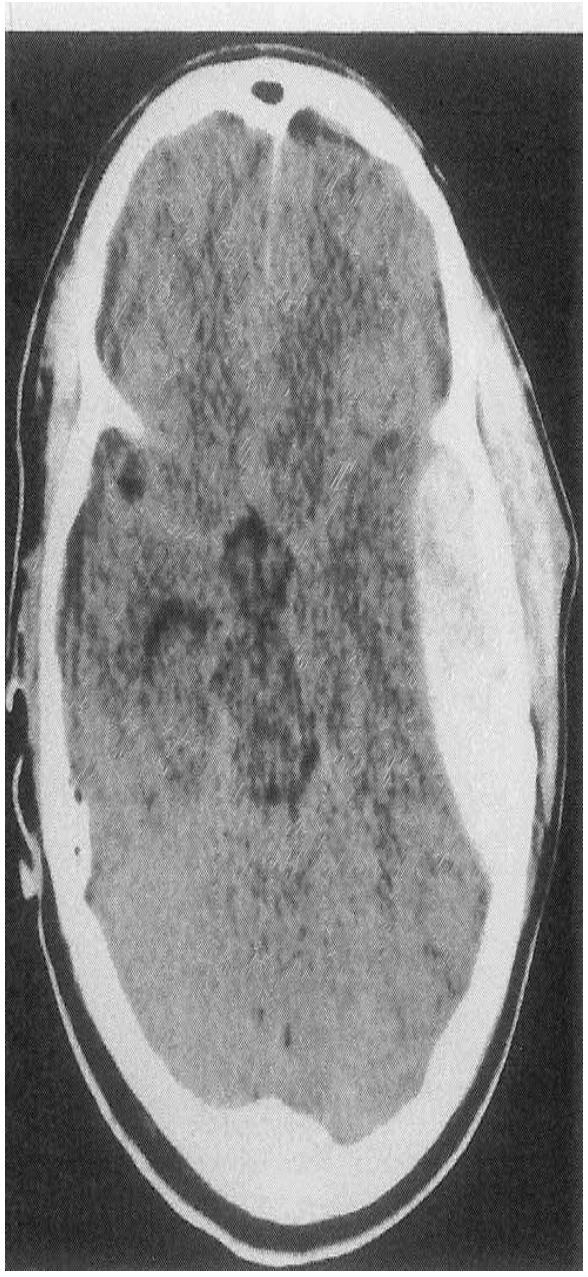


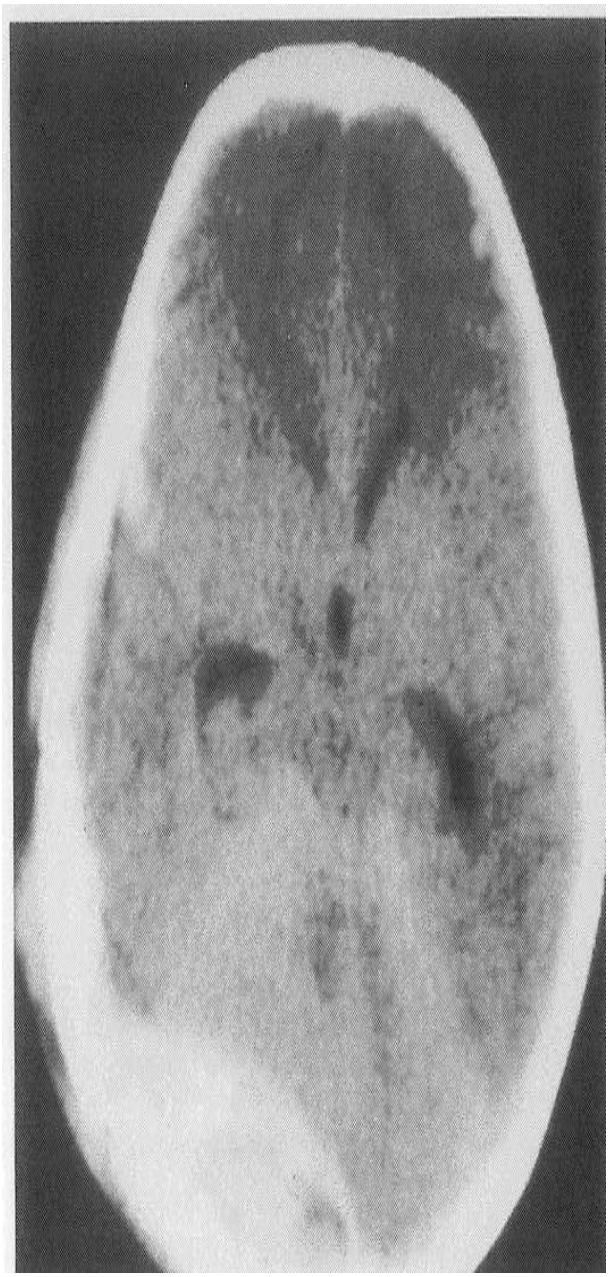


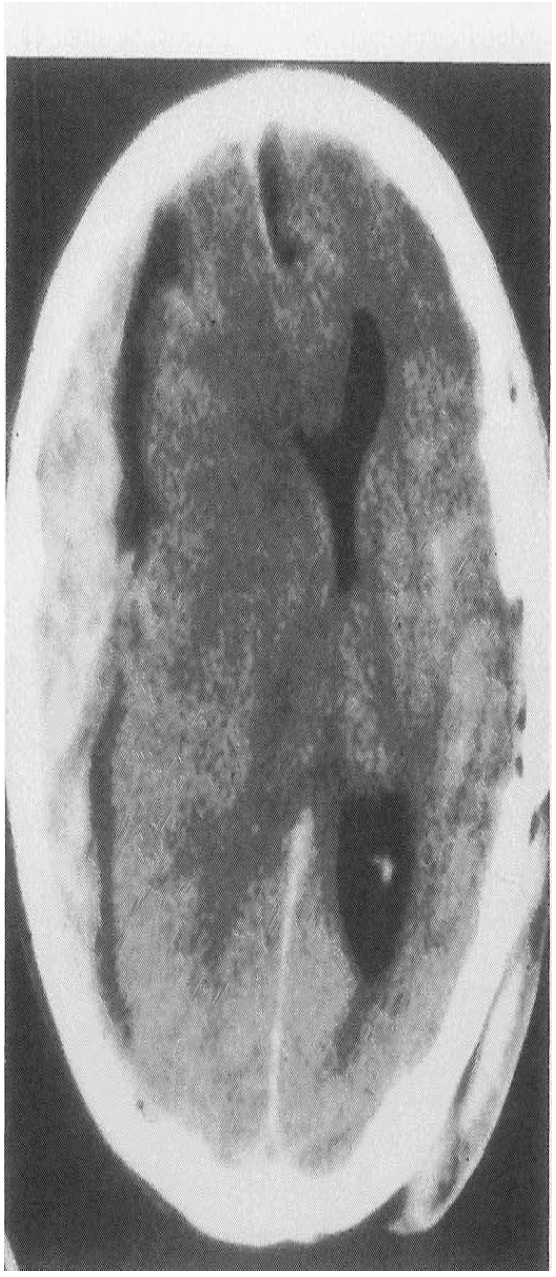
From Price SA, Wilson LM: *Pathophysiology: clinical concepts of disease processes*, ed 6, St. Louis, 2003, Mosby.

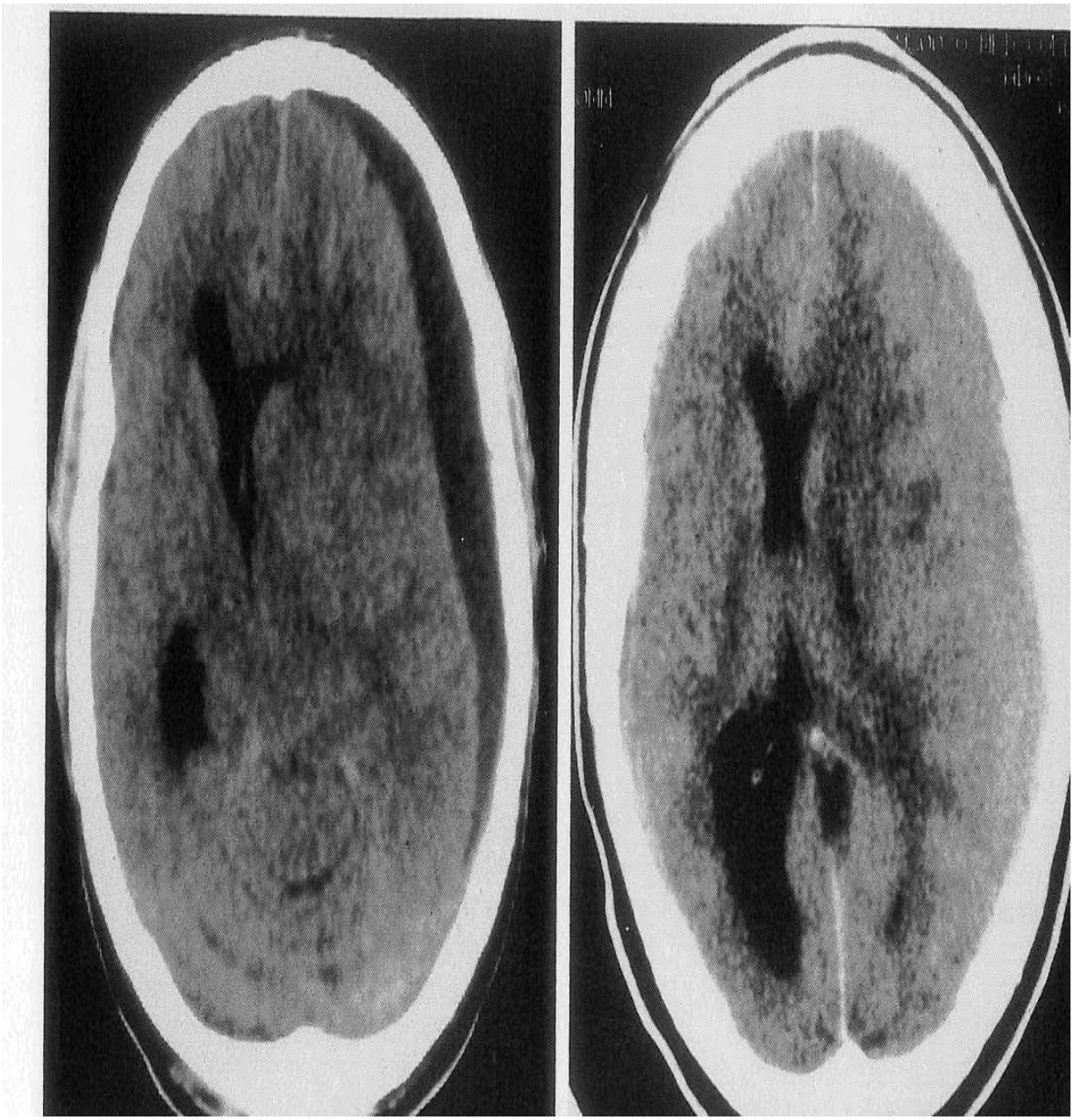
Subdural Hematoma

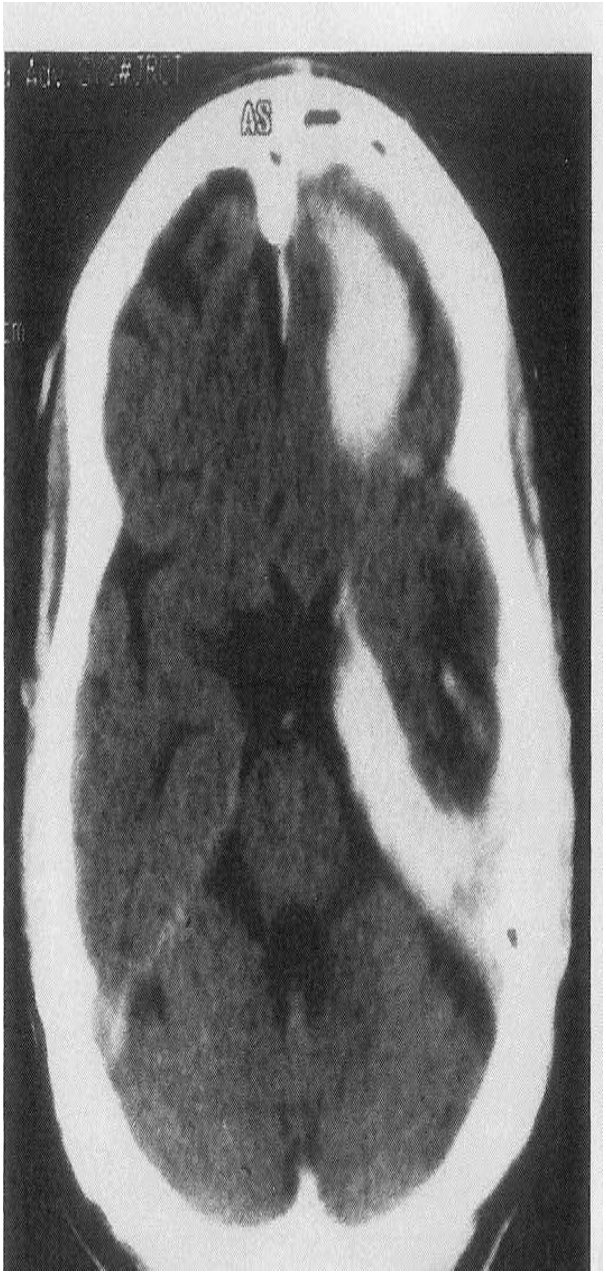
Fig. 55-15







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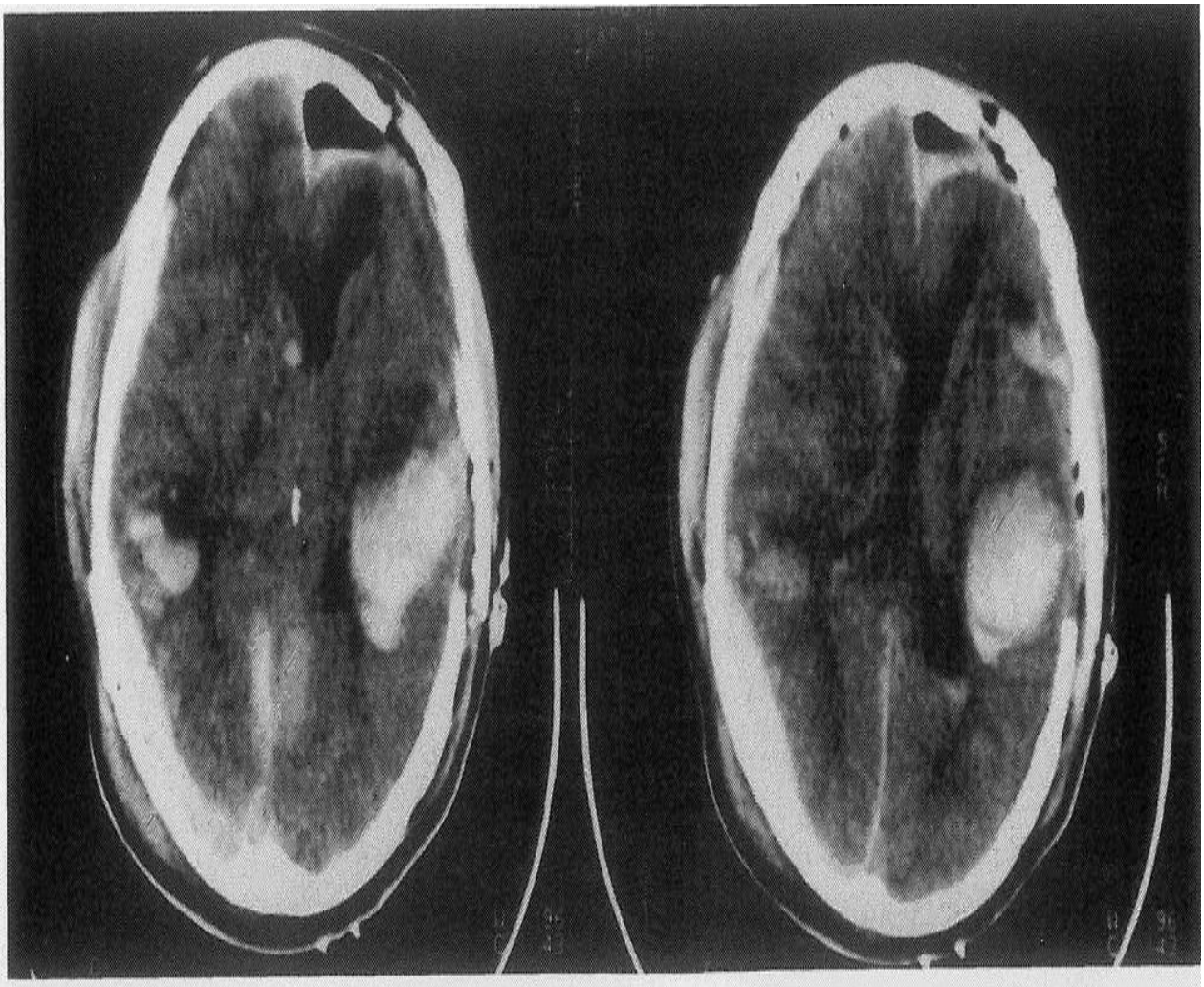
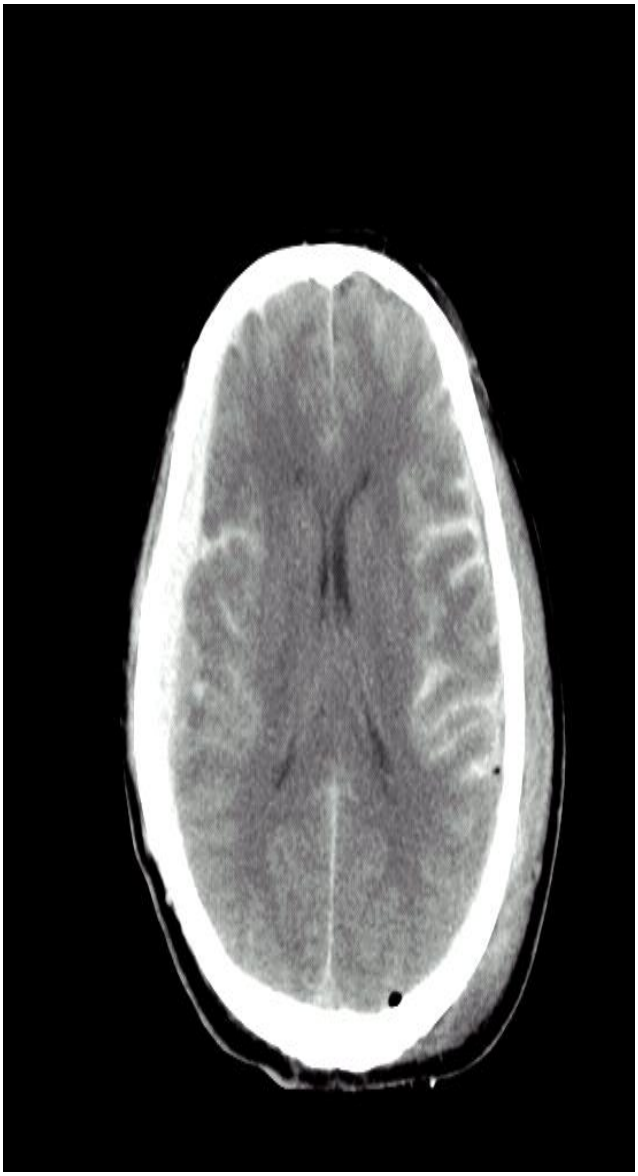
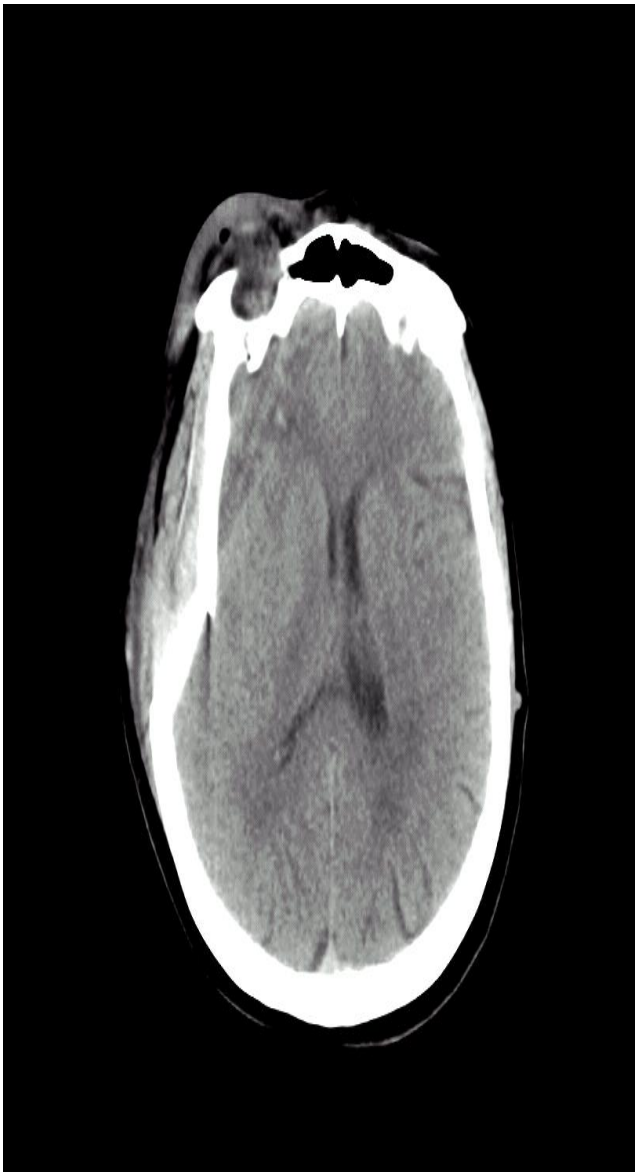


FIGURE 328–10. Computed axial tomogram showing multiple intracranial masses, including a subdural hematoma in the left frontal and parafalcine regions (which was operated on), a small epidural hematoma in the right posterior parietal region, and multiple intracerebral contusions.





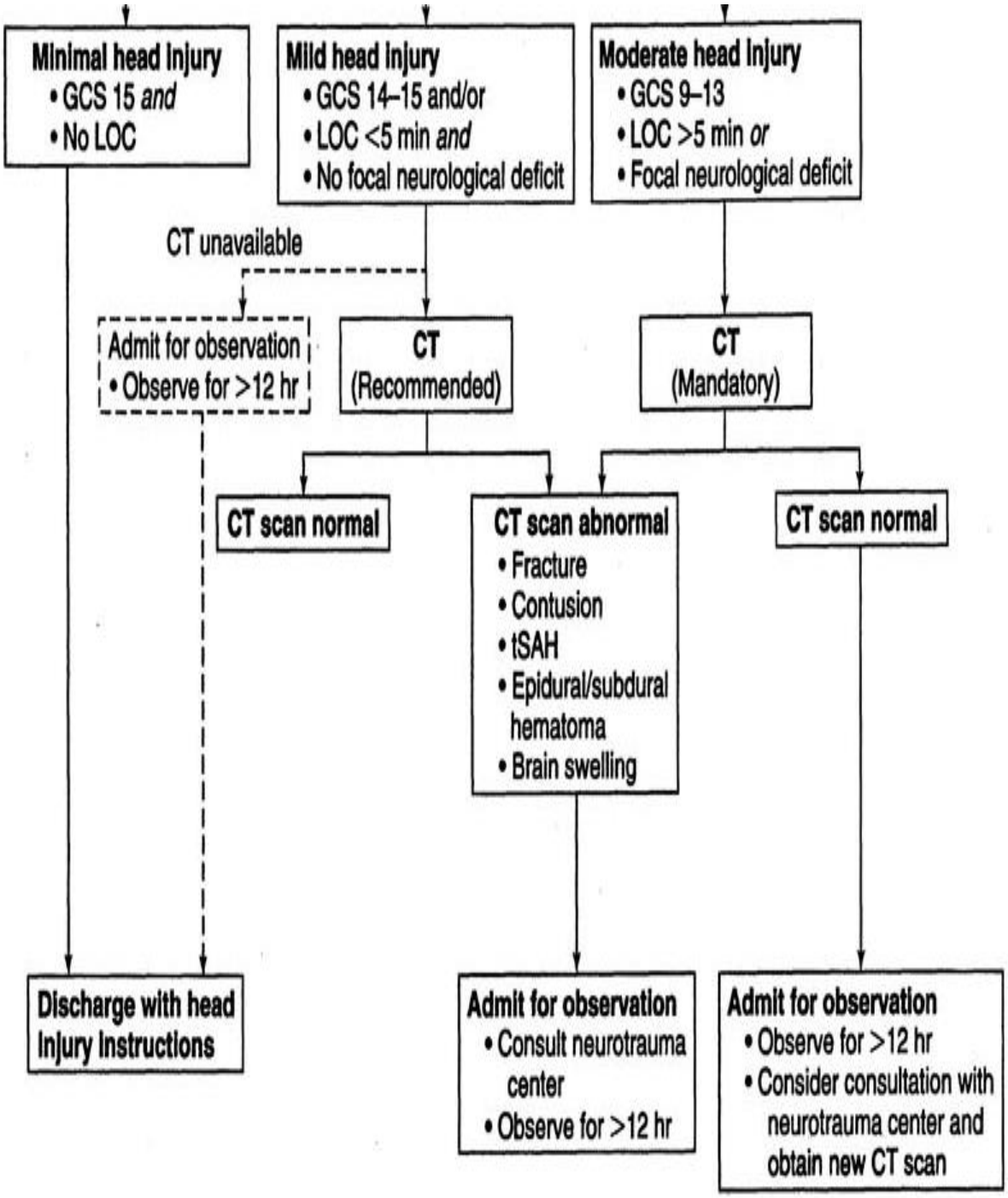


FIGURE 325–1. Patient management as suggested by a group of Scandinavian neurosurgeons.[24] CT, computed tomography; GCS, Glasgow Coma Scale; LOC, loss of consciousness; tSAH, traumatic subarachnoid hemorrhage.

nematoma
• Brain swelling
Discharge with head
Injury instructions
Admit for observation
• Observe for >12 hr