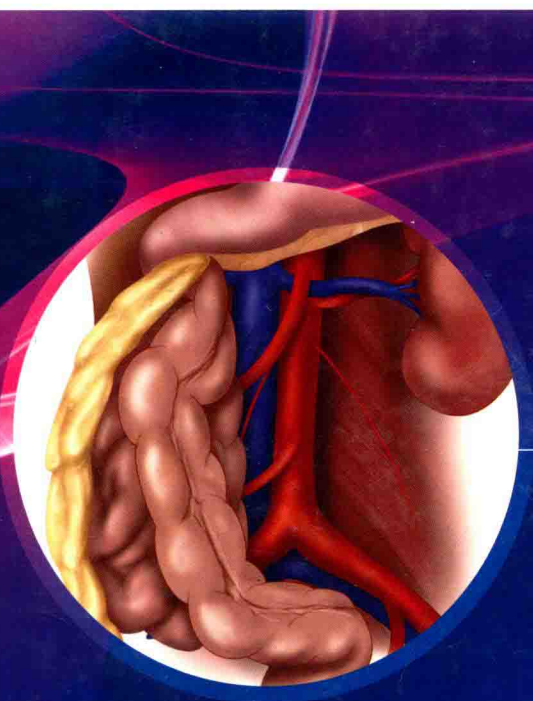


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# Atlas of Trauma/Emergency Surgical Techniques



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TECHNIQUES  
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SERIES**

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# **Atlas of Trauma/Emergency Surgical Techniques**

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# FOREWORD

*“A picture is worth a thousand words.”*

This atlas is for practicing surgeons, surgical residents, and medical students for their review and preparation for surgical procedures. New procedures are developed and old ones are replaced as technologic and pharmacologic advances occur. The topics presented are contemporaneous surgical procedures with step-by-step illustrations, along with the preoperative and postoperative considerations as well as pearls and pitfalls taken from the personal experience and surgical practice of the authors. Their results have been validated in their surgical practices involving many patients. Operative surgery remains a manual art in which the knowledge, judgment, and technical skill of the surgeon come together for the benefit of the patient. A technically perfect operation is the key to this success. Speed in operation comes from having a plan and devoting sufficient time to completion of each step, in order, one at a time. The surgeon must be dedicated to spending the time to do it right the first time; if not, there will never be enough time to do it right at any other time. Use this atlas, study it for your patients.

*“An amateur practices until he gets it right; a professional practices until she can’t get it wrong.”*

Courtney M. Townsend, Jr., MD  
B. Mark Evers, MD

# PREFACE

## The Bridge Builder

An old man going a lone highway,  
Came, at the evening cold and gray,  
To a chasm vast and deep and wide.  
Through which was flowing a sullen tide  
The old man crossed in the twilight dim,  
The sullen stream had no fear for him;  
But he turned when safe on the other side  
And built a bridge to span the tide.

"Old man," said a fellow pilgrim near,  
"You are wasting your strength with building here;  
Your journey will end with the ending day,  
You never again will pass this way;  
You've crossed the chasm, deep and wide,  
Why build this bridge at evening tide?"

The builder lifted his old gray head;  
"Good friend, in the path I have come," he said,  
"There followed after me to-day  
A youth whose feet must pass this way.  
This chasm that has been as naught to me  
To that fair-haired youth may a pitfall be;  
He, too, must cross in the twilight dim;  
Good friend, I am building this bridge for him!"

By Will Allen Dromgoole

The poem "The Bridge Builder" highlights the necessity to formulate and transmit new knowledge. This *Atlas* is our attempt as academic trauma and acute care surgeons to pass our knowledge on to the current and future generations of trauma and acute care surgeons that would follow in our path. It is our hope that the knowledge contained in these pages will be used not only to save lives, but also to teach others how to do the same. The authors dedicate this book to our families, to the future generations of students, residents, fellows, and surgeons who continue to serve as the pillars of our lives, and to this the most humane profession known to man.

William G. Cioffi  
Juan A. Asensio



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# **Atlas of Trauma/Emergency Surgical Techniques**

# INTRACRANIAL PRESSURE MONITORING AND VENTRICULOSTOMY

Michael D. Connolly, Charles A. Adams, Jr., and William G. Cioffi

Traumatic brain injury (TBI) is a major source of morbidity and mortality in the United States. TBI results in 1.1 million emergency department visits each year. Of these patients, 235,000 require hospital admission, and 50,000 people will die of their TBI. Furthermore, approximately 5.3 million people with TBI in the United States require long-term assistance with activities of daily living.

The treatment of TBI requires immediate and aggressive intervention to prevent the progression of secondary brain injury after trauma. The measurement of intracranial pressure (ICP) is an integral part of monitoring patients with severe TBI. This measurement is performed by placement of intraventricular or parenchymal monitors.

## Indications for Intracranial Pressure Monitoring

- ◆ Salvageable patients with severe TBI and an abnormality detected by computed tomography (CT)
  - ▲ Hematoma
  - ▲ Contusion
  - ▲ Swelling
  - ▲ Herniation
  - ▲ Compressed basal cisterns
- ◆ Salvageable patients with severe TBI and normal findings on CT with two or more of the following:
  - ▲ Age older than 40 years
  - ▲ Unilateral or bilateral motor posturing
  - ▲ Systolic blood pressure <90 mm Hg

## Clinical Anatomy

- ◆ The cranial vault is a rigid, nonexpandable space with an average volume of 1.9 liters.
- ◆ Approximate composition of skull volume (Figure 1-1) is 80% brain, 10% blood, and 10% cerebrospinal fluid (CSF).

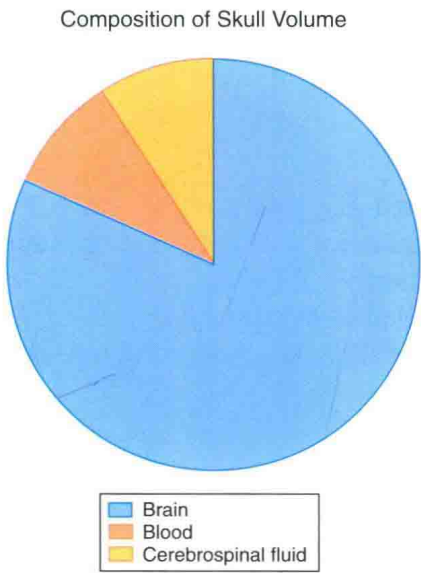


Figure 1-1