UROGENITAL TRAUMA

Selective nonoperative management in 1,856 patients with abdominal gunshot wounds: should routine laparotomy still be the standard of care?

Velmahos GC, Demetriades D, Toutouzas KG, Sarkisyan G, Chan LS, Ishak R, Alo K, Vassiliu P, Murray JA, Salim A, Asensio J, Belzberg H, Katkhouda N, Berne TV.
Department of Surgery, Division of Trauma and Critical Care, University of Southern California Keck School of Medicine, Los Angeles, California, USA
Ann Surg. 2001; 234: 395-402; discussion 402-3

Objective: To evaluate the safety of a policy of selective nonoperative management (SNOM) in patients with abdominal gunshot wounds.

Summary Background Data: Selective nonoperative management is practiced extensively in stab wounds and blunt abdominal trauma, but routine laparotomy is still the standard of care in abdominal gunshot wounds.

Methods: The authors reviewed the medical records of 1,856 patients with abdominal gunshot wounds (1,405 anterior, 451 posterior) admitted during an 8-year period in a busy academic level 1 trauma center and managed by SNOM. According to this policy, patients who did not have peritonitis, were hemodynamically stable, and had a reliable clinical examination were observed.

Results: Initially, 792 (42%) patients (34% of patients with anterior and 68% with posterior abdominal gunshot wounds) were selected for nonoperative management. During observation 80 (4%) patients developed symptoms and required a delayed laparotomy, which revealed organ injuries requiring repair in 57. Five (0.3%) patients suffered complications potentially related to the delay in laparotomy, which were managed successfully. Seven hundred twelve (38%) patients were successfully managed without an operation. The rate of unnecessary laparotomy was 14% among operated patients (or 9% among all patients). If patients were managed by routine laparotomy, the unnecessary laparotomy rate would have been 47% (39% for anterior and 74% for posterior abdominal gunshot wounds). Compared with patients with unnecessary laparotomy, patients managed without surgery had significantly shorter hospital stays and lower hospital charges. By maintaining a policy of SNOM instead of routine laparotomy, a total of 3,560 hospital days and US$9,555,752 in hospital charges were saved over the period of the study.

Conclusion: Selective nonoperative management is a safe method for managing patients with abdominal gunshot wounds in a level 1 trauma center with an in-house trauma team. It reduces significantly the rate of unnecessary laparotomy and hospital charges.

Editorial Comment

This is not a new article, but it is an important one. By now, everybody knows that many renal injuries can be treated nonoperatively: adult blunt injuries (1), pediatric blunt injuries (2), stab wounds (3), and even some gunshot wounds (4). Understanding some of the other ways that nonoperative (or “selective”) management of trauma patients has been applied can be very useful when managing your own patients. Here is a paper from a major US trauma center, and written by well-regarded general surgery traumatologists, regarding 1,856 patients with gunshot wound to the abdomen. At most centers, such wounds would be treated with 1,856 laparotomies. In this series, 1,046 (57%) patients that were hemodynamically stable, did not have peritonitis, and were examinable (no significant head injury, etc.) were admitted to the intensive care unit for observation. No laparotomy was performed unless the patients developed peritoneal signs or hypotension. Only 4% of patients developed these symptoms and had to undergo delayed laparotomy. The benefits of avoiding the unnecessary operations were obvious: unnecessary laparotomy rate decreased by 47% and observed patients enjoyed a speedier discharge from the hospital.

I think this study is amazing. Most of us that care for gunshot victims "know" that if you are shot in the abdomen you need a surgery. Clearly we were wrong. When you are trying to convince others or yourself to expand you own use of nonoperative therapy in those cases where it may be prudent (most hemodynamically stable renal injuries), remember this study.

References

1. Moudouni S M, Hadj Slimen M, Manunta A, Patard JJ, Guiraud PH, Guille F, Bouchot O, Lobel B: Management of major blunt renal lacerations: is a nonoperative approach indicated? Eur Urol. 2001; 40: 409-14.
2. Nance ML, Lutz N, Carr MC, Canning DA, Stafford PW: Blunt renal injuries in children can be managed nonoperatively: outcome in a consecutive series of patients. J Trauma. 2004; 474-8.
3. Heyns CF, Van Vollenhoven P: Selective surgical management of renal stab wounds. Br J Urol. 1992; 69: 351-7.
4. Hammer CC, Santucci RA: Effect of an institutional policy of nonoperative treatment of grades I to IV renal injuries. J Urol. 2003; 169: 1751-3

Dr. Richard A. Santucci
Assistant Professor of Urology
Wayne State University
Detroit, Michigan, USA

Transpelvic gunshot wounds: routine laparotomy or selective management?

Velmahos GC, Demetriades D, Cornwell EE 3rd

World J Surg. 1998; 22: 1034-8.

Mandatory exploration is the standard method for managing patients with gunshot wounds to the abdomen and back. This policy is associated with a high incidence of unnecessary laparotomies and significant morbidity. Reports from our center have shown that a policy of selective management, based on clinical findings, is safe in such patients. Patients with bullet trajectories that carry a high likelihood for intraabdominal organ injury may constitute a subgroup at particular risk. The need for routine or selective exploration in similar patients must be assessed. Therefore we decided to analyze patients with transpelvic gunshot wounds. The objective of the study was to examine if a policy of selective management of patients with transpelvic gunshot wounds is safe. This prospective study was conducted at an academic level I trauma center. We admitted 37 patients with transpelvic gunshot wounds over a 12-month period. All patients were managed according to a protocol that dictated laparotomy in the presence of significant clinical findings (peritoneal signs, hemodynamic instability, gross hematuria, rectal bleeding) and observation in the absence of the above. Additional diagnostic workup was performed only in appropriate cases rather than routinely. Nineteen (51.3%) patients were immediately operated on the basis of clinical findings. Sixteen of these laparotomies were therapeutic. Eighteen (48.6%) patients were initially observed. Subsequently, three of them underwent exploration for development of abdominal tenderness. All three laparotomies were nontherapeutic. The remaining 15 (40.5%) patients were successfully managed nonoperatively. There were no delays in diagnosis or missed injuries. Clinical examination had a sensitivity of 100% and specificity of 71.4% in detecting the need for laparotomy. A policy of selective management is thus safe, even for patients who suffer gunshot wounds with a high likelihood for intraabdominal organ injury. Clinical examination, supported by additional studies in appropriate cases, is the main method of selecting patients for operation or nonoperative treatment.

Editorial Comment

While the first paper deals with selective management of gunshot wounds to the back and abdomen, this paper centers on gunshot wounds to the pelvis. It is a much smaller study of only 37 patients, and as in the 2001 study cited previously, patients only had laparotomy if they had peritoneal signs, hemodynamic instability, gross hematuria or rectal bleeding. 51% got immediate operation and 49% were observed. 3/18 (17%) of those observed required exploration for peritoneal signs, but all 3 were nontherapeutic! So, once again this group turns what we know about trauma on its head. If you pick the correct physical exam signs to trigger surgery, you can avoid unnecessary laparotomy in about half of patients with gunshot to the pelvis. I must repeat, I think this is amazing. I think data such as this can give us the strength to "sin boldly" in our own world of genitourinary trauma, and determine which of our signs and symptoms predict who will not need operating.

Dr. Richard A. Santucci
Assistant Professor of Urology
Wayne State University
Detroit, Michigan, USA

PATHOLOGY

Risk of prostate cancer on re-biopsy following a diagnosis of high-grade prostatic intraepithelial neoplasia (HGPIN) is related to the number of cores sampled

Herawi M, Cavallo C, Kahane H, Epstein JI
The Johns Hopkins Hospital, Baltimore, MD, Dianon Corp., Stratford, CT, USA
Mod Pathol. 2005; 18 (suppl.1): abst #668, 145A

Background: We aimed to determine whether the extent of needle biopsy sampling both on the initial biopsy that showed HGPIN and on re-biopsy would influence the detection rate of cancer.

Design: 4,237 patients with an initial diagnosis of only HGPIN on needle biopsy were identified; patients who in addition to HGPIN had a focus of atypical glands, suspicious for cancer were excluded. Of these, 937 patients had at least one follow up biopsy and were the subject of this study. The mean age was 67.5 (range from 39 to 87 years). The mean interval from diagnosis of HGPIN to rebiopsy was 4.8 months. In the initial biopsy resulting in a diagnosis of HGPIN, 371 men had > 8 cores (median 10; range 8-26) and 399 men had 6 core sampling.

Results: Not taking into account the number of cores on rebiopsy, in the 6 core initial sampling group, the risk of cancer on rebiopsy was 22.1% versus 15.1% in the > 8 core group (p value = 0.013). The table shows the combined influence of numbers of cores in the initial and rebiopsy sampling.

Group	N Cores 1st Biopsy	N Cores Rebiopsy	Risk of Cancer
1	6	6	29/173 (16.8%)
2	6	≥ 8	26/83 (32.4%)
2	≥ 8	≥ 8	44/285 (15.4%)

The differences between groups 1 and 3 as compared to group 2 were statistically significant ($p = 0.001$ and $p < 0.0001$, respectively).

Conclusions: Many cases of HGPIN on biopsy are associated with adjacent unsampled cancer. With relatively poor sampling (6 cores) on the initial biopsy, associated cancers are missed resulting in only HGPIN