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Letter

Diagnostic Peritoneal Lavage: Advantages, Disadvantages, and Applications in Abdominal Trauma

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Abstract
While advanced imaging modalities have revolutionized trauma care, diagnostic peritoneal lavage (DPL) remains an irreplaceable diagnostic tool in specific clinical scenarios. This letter argues for the continued relevance of DPL as the most sensitive invasive method for detecting intraperitoneal bleeding, particularly in hemodynamically unstable patients where Focused Assessment with Sonography for Trauma (FAST) and Computed Tomography (CT) scanning are not feasible. Despite technological advances, the unique diagnostic capabilities of DPL warrant its preservation in emergency trauma protocols.
Keywords: Penetrating abdominal trauma, Blunt abdominal trauma, Diagnostic peritoneal lavage

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Introduction

Trauma is the leading cause of death and one of the main causes of disability and incapacity in the working population in developing countries and the fourth cause of death in developed countries (1, 2). In terms of the mechanism of injury, the abdomen is the third most vulnerable area, which most often requires surgery (2). Blunt abdominal trauma can cause much more harm to the individual than penetrating trauma (1). In many cases, FAST and helical computed tomography (CT) are used for blunt abdominal trauma, especially in cases of stable hemodynamics (3, 4). Diagnostic peritoneal lavage (DPL) and ultimately exploratory laparotomy are used as the gold standard in cases of hemodynamic instability (1). However, we argue that diagnostic peritoneal lavage (DPL) plays a critical and irreplaceable role in contemporary trauma care that extends beyond its historical significance since 1965 (5).

The Irreplaceable Niche of DPL

While FAST and CT have become standard diagnostic tools, DPL offers unique advantages that cannot be replicated by non-invasive methods. As the only available invasive diagnostic technique, DPL demonstrates superior sensitivity for mesenteric and visceral injuries compared to imaging modalities (6, 7). This distinction becomes clinically crucial when considering that missed intra-abdominal injuries remain a leading cause of preventable mortality in trauma patients. The true value of DPL emerges in specific clinical contexts where advanced imaging fails or is contraindicated. In hemodynamically unstable patients who cannot undergo CT scanning, DPL provides an immediate and accurate assessment of intraperitoneal bleeding (8, 9)

Clinical Decision-making Paradigm

The contemporary role of DPL should not be viewed as competing with FAST or CT, but rather as complementary within a diagnostic algorithm (8-10). In asymptomatic penetrating anterior abdominal trauma, DPL offers unparalleled diagnostic accuracy when imaging results are equivocal or unavailable (9-12) The versatility of the technique extends beyond trauma, finding applications in the assessment of splenic injury, management of hypothermia, evaluation of diaphragmatic injury, and even diagnosis of sigmoid diverticulitis (13-15).

Safety and Technical Excellence

Critics often cite invasive complications as limitations of DPL. However, evidence from over 2500 cases

demonstrates that when performed with proper technique and safety principles, complication rates remain acceptably low (16, 17). The key lies not in abandoning the technique, but in ensuring adequate training and adherence to established protocols.

Conclusion

In an era dominated by advanced imaging, DPL represents a critical diagnostic capability that bridges the gap between clinical uncertainty and surgical intervention. Rather than viewing DPL as an outdated technique, we should recognize it as an essential tool in the diagnostic armamentarium of trauma surgeons. The question is not whether DPL should be replaced, but how it can be optimally integrated into modern trauma protocols to maximize patient outcomes. Healthcare systems should ensure that this valuable diagnostic skill is preserved and appropriately utilized, particularly in resource-limited settings or when advanced imaging is unavailable or contraindicated.

Competing Interests

The authors report no actual or potential conflict of interests

Ethical Approval

Not applicable.

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References

1. Mohammadi MH, Enhesari A, Ghaedamini H, Amirbeigi A, Farahbakhsh S. Investigating the diagnostic accuracy of focused assessment with sonography in trauma (FAST) compared to CT scan in patients with blunt abdominal trauma. J Babol Univ Med Sci 2023;25(1):143-51. doi:10.22088/jbums.25.1.143
2. Shams M, Elyasi A. Comparison of diagnostic laparoscopy and exploratory laparotomy in the management of patients with penetrating abdominal trauma. J Babol Univ Med Sci 2021;23(1):222-8. doi:10.22088/jbums.23.1.222
3. Achatz G, Schwabe K, Brill S, Zischek C, Schmidt R, Friemert B, et al. Diagnostic options for blunt abdominal trauma. Eur J Trauma Emerg Surg 2022;48(5):3575-89. doi:10.1007/s00068-020-01405-1
4. Filiberto DM, Afzal MO, Sharpe JP, Seger C, Shankar S, Croce MA, et al. Radiographic predictors of therapeutic operative intervention after blunt abdominal trauma: the RAPTOR score. Eur J Trauma Emerg Surg 2021;47(6):1813-7. doi:10.1007/s00068-020-01371-8
5. Root HD, Hauser CW, McKinley CR, Lafave JW, Mendiola RP Jr. Diagnostic peritoneal lavage. Surgery 1965;57:633-7.
6. Ceraldi CM, Waxman K. Computerized tomography as an indicator of isolated mesenteric injury. A comparison with peritoneal lavage. Am Surg 1990;56(12):806-10.
7. Meyer DM, Thal ER, Weigelt JA, Redman HC. Evaluation of computed tomography and diagnostic peritoneal lavage in blunt abdominal trauma. J Trauma 1989;29(8):1168-72. doi:10.1097/00005373-198908000-00017
8. Galbraith TA, Oreskovich MR, Heimbach DM, Herman CM, Carrico CJ. The role of peritoneal lavage in the management of stab wounds to the abdomen. Am J Surg 1980;140(1):60-4. doi:10.1016/0002-9610(80)90418-3
9. Thal ER. Evaluation of peritoneal lavage and local exploration in lower chest and abdominal stab wounds. J Trauma 1977;17(8):642-8. doi:10.1097/00005373-197708000-00012
10. Maron S, Baker MS. Splenic rupture due to extraperitoneal gunshot wound: use of peritoneal lavage in the low-tech environment. Mil Med 1994;159(3):249-50.
11. Mitchell TA, Wallum TE, Becker TE, Aden JK, Bailey JA, Blackbourne LH, et al. Nonoperative management of splenic injury in combat: 2002-2012. Mil Med 2015;180(3 Suppl):29-32. doi:10.7205/milmed-d-14-00411
12. van Veelen MJ, Brodmann Maeder M. Hypothermia in trauma. Int J Environ Res Public Health 2021;18(16):8719. doi:10.3390/ijerph18168719
13. Whitehouse JS, Weigelt JA. Diagnostic peritoneal lavage: a review of indications, technique, and interpretation. Scand J Trauma Resusc Emerg Med 2009;17:13. doi:10.1186/1757-7241-17-13
14. Sekusky AL, Lopez RA. Diaphragm trauma. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2025.
15. Afshar S, Kurer MA. Laparoscopic peritoneal lavage for perforated sigmoid diverticulitis. Colorectal Dis 2012;14(2):135-42. doi:10.1111/j.1463-1318.2011.02606.x
16. Fischer RP, Beverlin BC, Engrav LH, Benjamin CI, Perry JF Jr. Diagnostic peritoneal lavage: fourteen years and 2,586 patients later. Am J Surg 1978;136(6):701-4. doi:10.1016/0002-9610(78)90339-2
17. Nagy KK, Roberts RR, Joseph KT, Smith RF, An GC, Bokhari F, et al. Experience with over 2500 diagnostic peritoneal lavages. Injury 2000;31(7):479-82. doi:10.1016/s0020-1383(00)00010-3