Netherlands
The Journal of Medicine

EDITORIAL

Pyogenic liver abscess – predicting failure to improve outcome

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Pyogenic liver abscess (PLA) has been and still is a life-threatening medical emergency. Newer potent antibiotics, improved critical care and advances in imaging have lowered mortality in patients with PLA. The shift from surgery to percutaneous decompression as the first-line treatment is also perceived to lower mortality, albeit the lack of robust comparative data.[1] This underlies Chen *et al.*'s effort in defining poor prognostic factors in patients with PLA in the hope of advocating more aggressive treatment to further improve outcome.[2]

Chen *et al.* classified the poor prognostic factors to patient's severity of health, assessed by the Acute Physiology And Chronic Health Evaluation (APACHE) II score, and characteristics of the offending pathology. The systemic effects of sepsis with multi-organ failure as poor prognostic factors are well borne out in many large retrospective studies, while malignancy especially associated with the hepatopancreaticobiliary type carries a grave prognosis (*table 1*).[3-10] However, these easily recognisable features need not be scored with the tedious APACHE score by busy clinicians to warrant aggressive intensive critical care.

Of particular interest in this recent work is the finding of multi-drug resistant (MDR) isolates and anaerobes to be poor prognostic factors. Clinicians should be aware of the potential need for more potent drugs according to isolate sensitivity and the continual inclusion of metronidazole in systemic antibiotics for PLA. Other local factors previously described include rupture, multiple abscesses, gas-forming, large size and multi-loculation.[3,5-7,9] Multivariate analysis has not shown them to be independent risk factors in most studies. While the reasons are not fully apparent in these retrospective series, local factors may be the all important elements in deciding aggressive treatment.

What is aggressive treatment? Other than aggressive intensive critical care, the authors' suggestion that open surgical drainage is the more aggressive treatment is contentious. It is, however, the surgical dictum

Table 1. *Large retrospective studies with poor prognostic factors in patients with pyogenic liver abscess*

		Independent risk factors*		
Study, reference	**No.**	**Systemic**	**Local**	**Mortality (%)**
Chen *et al.*[2] (Taiwan)	253	APACHE II ≥15 Urea↑	Gas-forming, MDR, anaerobe	9.1
Chou *et al.*[3] (Taiwan)	352	Sepsis Age↑, bilirubin↑, urea↑, creatinine↑, albumin↓	-	19.6
Chu *et al.*[4] (Hong Kong)	83	Concomitant malignancy, bilirubin↑, prothrombin time↑	-	18
Barakate *et al.*[5] (Australia)	89	Concomitant malignancy	-	8
Alvarez *et al.*[6] (Spain)	133	Sepsis, shock Urea↑, haemoglobin↓	Biliary origin, multiple abscess	14
Lee *et al.*[7] (Taiwan)	135	Sepsis	-	6
Ruiz *et al.*[8] (Spain)	84	Sepsis, shock	-	19
Ng *et al.*[9] (Hong Kong)	143	Urea↑, prothrombin time↑	Size (mean diameter 6.5 cm)	13

APACHE = Acute Physiology And Chronic Health Evaluation score; MDR = multi-drug resistant. *Multivariate analysis.

to operate on patients with peritonitis from abscess rupture, concomitant ruptured viscus or other causes of concomitant surgical abdomen. Otherwise, percutaneous drainage is the appropriate first-line intervention to reduce the septic load without additional stress to the patient's decompensated health.[1] While this procedure may be complementary in certain situations, the guidelines and monitoring of endpoints of failure are not well defined. Its failure can lead to the continual sepsis and superinfection with MDR alluded to earlier with grave consequences. Logically, the two local factors that may hamper effective decompression to aid resolution of sepsis are large size and multi-loculation, hence the proposal by some investigators for open surgery in these abscesses.[11,12]

It borders on a thin ethical line to propose randomised comparative studies between surgery and percutaneous drainage. Informed consent from patients will be difficult to obtain, on top of potential legal implications of subjecting them to a more invasive and risky alternative. Thus, there is a need for prospective protocols with standardised parameters and well-defined endpoints of therapy to elucidate these potential local risk factors in large, multicentred trials. Currently, the appropriate aggressive management of patients with PLA benefits from local experiences which individualise therapy according to the patient's clinical status and local factors.

REFERENCES

1. Chung YFA, Tan YM, Lui HF, et al. Management of pyogenic liver abscesses – percutaneous or open drainage? Singapore Med J 2007;48:1158-65.
2. Chen C, Tsai SJ, Lee YT, et al. Predictors of mortality in patients with pyogenic liver abscess. Neth J Med 2008;66:196-203.
3. Chou FF, Sheen-Chen SM, Chen YS, et al. Prognostic factors for pyogenic abscess of the liver. J Am Coll Surg 1994;179:727-32.
4. Chu KM, Fan ST, Lai ECS, Lo CM, Wong J. Pyogenic liver abscess. An audit of experience over the past decade. Arch Surg 1996;131:148-52.
5. Barakate MS, Stephen MS, Waugh RC, et al. Pyogenic liver abscess: a review of 10 years' experience in management. Aust N Z J Surg 1999;69:205-9.
6. Alvarez Perez JA, Gonzalez JJ, Baldonedo RF, et al. Clinical course, treatment, and multivariate analysis of risk factors for pyogenic liver abscess. Am J Surg 2001;181:177-86.
7. Lee KT, Wong SR, Sheen PC. Pyogenic liver abscess: an audit of 10 years' experience and analysis of risk factors. Dig Surg 2001;18:459-65.
8. Ruiz-Hernandez JJ, Leon-Mazorra M, Conde-Martel A, Marchena-Gomez J, Hemmersbach-Miller M, Betancor-Leon P. Pyogenic liver abscesses: mortality-related factors. Eur J Gastroenterol Hepatol 2007;19:853-8.
9. Ng WC, Li WH, Cheung MT. Audit of management of pyogenic liver abscess in a tertiary referral hospital. Surg Pract 2008;12:7-10.
10. Yeh TS, Jan YY, Jeng LB, et al. Pyogenic liver abscesses in patients with malignant disease: a report of 52 cases treated at a single institution. Arch Surg 1998;133:242-5.
11. Tan YM, Chung YFA, Chow PKH, et al. An appraisal of surgical and percutaneous drainage for pyogenic liver abscesses larger than 5 cm. Ann Surg 2005;241:485-90.
12. Tan YM, Chung YFA, Soo KC. Large pyogenic liver abscess: open surgical drainage for all? Ann Surg 2006;244:163-4.