



Cost of Surgery for Abdominal Cystic Echinococcosis. Single Center Experience from 2008 to 2014

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Narra R.^{1,4}, Maestri M.^{1,2}, Nicoletti G.J.^{1,4}, Rinaldi F.^{1,4}, Mariconti M.^{3,4}, Tamarozzi F.^{1,4}, Abbott D.¹, Brunetti E.^{1,3,4}

¹Department of Clinical, Surgical, Diagnostic and Paediatric Sciences, University of Pavia, Italy; ²Division of General Surgery, San Matteo Hospital Foundation, Pavia, Italy;

³Division of Tropical Infectious Diseases, San Matteo Hospital Foundation, Pavia, Italy; ⁴WHO Collaborating Centre for Clinical Management of Cystic Echinococcosis

INTRODUCTION

- ❖ Human cystic echinococcosis (CE) is a **chronic, complex** and **neglected** zoonosis with a global distribution.
- ❖ Its clinical spectrum ranges from asymptomatic to severe infection. Rarely, the disease can even be fatal.
- ❖ **Four approaches in clinical management** exist:

- ✓ Surgery
- ✓ Percutaneous techniques (PAIR, PC),
- ✓ Albendazole (ABZ)
- ✓ Watch and wait

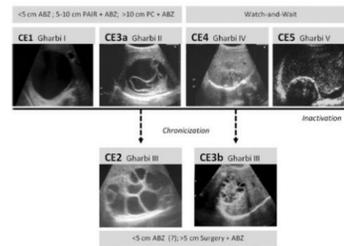


Figure 1. Allocation to treatment of uncomplicated hepatic CE cysts according to cyst stage and size.

Allocation of patients to these treatments should be based on cyst stage and size (Fig 1), anatomical location, available clinical expertise, and co-morbidities. However, clinical decision algorithms, efficacy, relapse rates, and costs have never been properly evaluated.

- ❖ **Surgery for liver CE should be limited to complicated cysts but most centers still use surgery for all cysts, including uncomplicated cysts that could be treated with non surgical approaches or watch and wait.**
- ❖ Data on the cost of surgery for CE is scant, making comparison with costs of non-surgical treatments impossible.

OBJECTIVES

To evaluate in detail the cost of surgery for abdominal CE in a referral centre for echinococcosis in North Italy.

MATERIALS AND METHODS

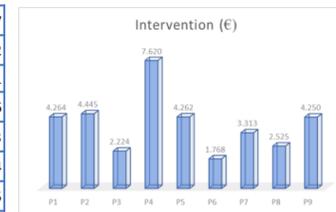
Patients operated for abdominal CE from January 2008 to June 2014 in the Department of General Surgery (San Matteo Hospital Foundation)

RESULTS

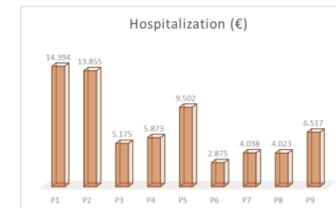
Sex	M	7
	F	2
Age	Range:	28-61
	Mean value:	46
	Mean	42,3
Origin	Italy	4
	Other countries	5
Cysts N.	Single	7
	Multiple	2
Size	Min.	7cm
	Max.	15cm
Stage	CE3b	8
	CE4	1
Co-morbidity	(kidney cancer; gall-bladder cancer)	2
Previous treatments	ABZ alone	4
	Percutaneous	1
	Surgery + ABZ	1
	Percutaneous + ABZ	1
	None	2
Indications to surgery	Infection	1
	Cysto-biliary fistula	2
	Compressive symptoms	6
Type of intervention	Marsupialisation	4
	Pericystectomy	3
	Lobectomy	2
Follow up (months)		0-10
Complications	During the hospitalization	2
	After the hospitalization	1

Table 1. Summary of history and clinical data of included patients.

Note: Intervention costs = based on mean cost per hour of the operation theatre, personnel, material and drugs used during the intervention; hospitalization costs = based on mean daily cost of hospitalization in the General Surgery Unit, materials and drugs; total costs = costs of intervention, hospitalization, exams, and administrative costs.



Graph 1. Costs related to each intervention.



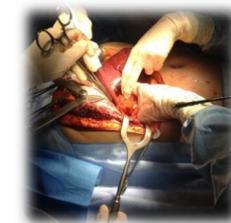
Graph 2. Costs of each hospitalization.



Graph 3. Total costs

DISCUSSION

- ❖ Between 2001 and 2014, 18.445 CE cases were recorded in Italy according to Hospital Discharge Records (Masala *et al.*, 2012), however, no cases are notified to European health agencies.
- ❖ A stage-specific approach is seldom used. Only 29% of the papers on CE, published since the WHO-IWGE classification was issued, mentioned the cysts stage (Tamarozzi *et al.* 2014).
- ❖ Previous studies on the economic burden of CE calculated direct costs of treatment based only on DRG (Diagnosis Related Groups) using itemized prices. To our knowledge, this is the **first study** detailing **the actual direct costs of surgery** for abdominal CE in a Western country and it shows that surgery can be extremely **expensive**.
- ❖ **The inappropriate use of surgery to treat CE cysts that could be managed with other types of treatment may have a remarkable impact on public health economic resources.**



CONCLUSIONS

This study should be replicated in both developed and developing countries with a high burden of CE and with different healthcare systems, to obtain a clearer picture of the global monetary costs of CE.

A more rational, stage-specific approach to clinical decision making in CE is needed also to reduce wasting health resources.