STROBE Statement—checklist of items that should be included in reports of observational studies

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|  | Item No. | Recommendation | Page  No. | Relevant text from manuscript |
| **Title and abstract** | 1 | (*a*) Indicate the study’s design with a commonly used term in the title or the abstract | 1 | Between January 2009 and December 2020, 247 patients underwent surgery for the hydatic disease of the liver in our department. Out of the 247 patients, 70 patients underwent laparoscopic treatment. A retrospective analysis between the two groups was performed |
| (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found | 1 | Results: There were statistically significant differences regarding the cyst dimension, location and presence of cystobiliary fistula. There were no intraoperative complications in the laparoscopic group. The cutoff value for the cyst size regarding the presence of cystobiliary fistula was 6.85 cm (p=0.001). |
| Introduction | | | |  |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 1/2 | Despite surgery remaining the treatment of choice, an increased interest in non-surgical techniques is encountered in the current literature. Since the open procedures present with a higher risk of morbidity, the laparoscopic approach grew in popularity, although the benefits that laparoscopy provides, and the risk of recurrence remains debatable |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 2 | This retrospective study evaluates the results of the laparoscopic treatment of the hydatic disease of the liver, compared to the open approach in the context of a 12-year single institution experience in terms of the morphological characteristics of the cysts and the perioperative parameters |
| Methods | | | |  |
| Study design | 4 | Present key elements of study design early in the paper | 2 | Out of the 247 patients, 77 underwent laparoscopic treatment out of which 7 required conversions to open surgery. Therefore, two groups were created, the first group (group A) comprised of 70 patients which underwent laparoscopic treatment, and the second group (group B) of 170 patients who underwent open surgery. In both groups, there were 73 patients with cysto-biliary communication. Associated cholecystectomy was performed in 62 of the cases. |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | 2 | Between January 2009 and December 2020, 247 patients underwent surgery for the hydatic disease of the liver in our surgical department. Patients were reviewed retrospectively. |
| Participants | 6 | (*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants | 2/3 | The primary inclusion criteria were patients who underwent surgery for hydatid disease of the liver, patients over 18 years who signed the informed consent. Exclusion criteria were patients with incomplete records, lack of signed informed consent, patients with spontaneous rupture, patients who underwent conversion to open surgery or patients who underwent percutaneous treatment. There were no exclusion criteria regarding cyst location, cyst size or number of cysts.  two groups were created, the first group (group A) comprised of 70 patients which underwent laparoscopic treatment, and the second group (group B) of 170 patients who underwent open surgery |
| (*b*)*Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed  *Case-control study*—For matched studies, give matching criteria and the number of controls per case |  |  |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable |  |  |
| Data sources/ measurement | 8\* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | *2/3* | The groups were analyzed based on their demographic, preoperative and postoperative parameters, cyst parameters as well as follow-up and morbidity. |
| Bias | 9 | Describe any efforts to address potential sources of bias | 5 | In order to minimize the potential sources of bias, additional parameters were compared to verify the potential differences between the two groups. |
| Study size | 10 | Explain how the study size was arrived at | 2 | Out of the 258 patients, 77 underwent laparoscopic treatment out of which 7 required conversions to open surgery. 11 cases presented with spontaneous rupture of the cyst, thus being excluded. |

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| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 5 | When accounting for quantitative variables, such as surgery duration, estimated blood loss, cyst diameter, normality tests were used to verify the distribution of the data (using Kolmogorov-Smirnov and Shapiro-Wilk tests). Thus, non-normal distributed data was evaluated by comparing median values, using Mann-Whitney U tests, and normal distributed data was evaluated by comparing mean values, using T-test for independent variables (mean age) |
| Statistical methods | 12 | (*a*) Describe all statistical methods, including those used to control for confounding | 5 | To minimize the potential sources of bias, additional related parameters were compared to verify the potential differences between the two groups as well as to control the potential confounding variables. |
| (*b*) Describe any methods used to examine subgroups and interactions | 2/3 | - |
| (*c*) Explain how missing data were addressed | 2 | . Exclusion criteria were patients with incomplete records, lack of signed informed consent, patients with spontaneous rupture, patients who underwent conversion to open surgery or patients who underwent percutaneous treatment |
| (*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed  *Case-control study*—If applicable, explain how matching of cases and controls was addressed  *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy | - |  |
| (*e*) Describe any sensitivity analyses | - |  |
| Results | | | | |
| Participants | 13\* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 2 | Out of the 268 patients, 77 underwent laparoscopic treatment out of which 7 required conversions to open surgery. 11 cases presented with spontaneous rupture of the cyst and 10 cases had incomplete data, thus being excluded. Therefore, two groups were created, the first group (group A) comprised of 70 patients which underwent laparoscopic treatment, and the second group (group B) of 170 patients who underwent open surgery |
| (b) Give reasons for non-participation at each stage | 2 |  |
| (c) Consider use of a flow diagram | - |  |
| Descriptive data | 14\* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 5 | See table 1 |
| (b) Indicate number of participants with missing data for each variable of interest | 2 |  |
| (c) *Cohort study*—Summarise follow-up time (eg, average and total amount) |  |  |
| Outcome data | 15\* | *Cohort study*—Report numbers of outcome events or summary measures over time | *5-8* | *See tables 1-6* |
| *Case-control study—*Report numbers in each exposure category, or summary measures of exposure |  |  |
| *Cross-sectional study—*Report numbers of outcome events or summary measures |  |  |
| Main results | 16 | (*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 5-8 | See Tables 1-6 |
| (*b*) Report category boundaries when continuous variables were categorized | - |  |
| (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period | - |  |

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| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses | 8-9 | See Fig 1/2 |
| Discussion | | | | |
| Key results | 18 | Summarise key results with reference to study objectives | 8-9 |  |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 13 |  |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 13-14 | Our study presents some limitations. First, being a retrospective study, the data completed in both electronic databases and medical archives might have errors in completion, this being one of the main reasons for excluding the patients with incomplete data. Second, being a retrospective analysis, the choice for open or laparoscopy surgery can be purely subjective based on the surgeon’s experience, which in a retrospective setting cannot be adequately quantified. One of the main reasons for comparing the current laparoscopic experience with the one from our previous study was to diminish this limit, highlighting a significant improvement with a broadened case selection, improved postoperative recovery as well as maintaining intraoperative parameters. |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results | 14 | Finally, compared to the current literature, our results showcase similar results in terms of the effectiveness of the laparoscopic procedure with relative changes in the management of the patients which can be explained by the current setting of our tertiary center. Some of these results might be difficult to reproduce in smaller-volume centers. |
| Other information | |  | | |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | - |  |

\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.