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SC240 Is there a risk of virus contamination through pneumoperitoneum during laparoscopic surgery in patients with COVID-19? A cadaveric study

A.M. Granata, F. Palmisano, A.L.L. Romanò, M. Piccinelli, M. Tozzi, M. Federica, G.L. Fumagalli, M. Talso, G.P. Incarboni, A. Gregori, (Milano)

Author of the Study: The coronavirus disease 2019 (COVID-19) pandemic raised concerns about the safety of laparoscopy due to the risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) diffusion in pneumoperitoneum gas. Although societies recommended caution or even discouraged the use of a laparoscopic approach, no studies have ever investigated any type of coronavirus and no cases of SARS-CoV-2 contagion related to pneumoperitoneum aerosol has been reported. The aim of this study was evaluate the risk of virus spread due to pneumoperitoneum aerosol during minimally invasive surgeries.

Materials and Methods: We performed a laparoscopic cadaveric model on patients died of SARS-CoV-2 infection confirmed by real-time PCR analysis of throat swab samples taken at the time of hospital admission. A supraumbilical access was performed to insert a 5 mm trocar (Tr1) setting the pneumoperitoneum to 18 mmHg. A second 5 mm disposable trocar (Tr2) was placed 10 cm from the patient's midline between Tr1 and left anterior superior iliac spine and a pneumoperitoneum smoke evacuation system was connected to Tr1. Four samples were taken during the procedure: one swab from nasopharynx (S1); one swab from Tr2 after insufflation closure until a complete desufflation of the abdomen; one represented by the internal membrane of the smoke evacuation system after pneumoperitoneum induction and a complete deflation (S3); one swab from the abdomen through the Tr1 passage after trocars removal and pneumoperitoneum deflation without use of a filtration system (S4). Lung, kidney and liver specimen was analyzed using molecular biology for Sars-Cov-2 identification.

Results: Included patients were 12, 9 men and 3 women, with a mean age of 78.2 years (SD 8; range 61–89). Time spent in the intensive care unit or intermediate medical ward (subintensive care) ranged from 1 to 26 days (mean 9,25 days; SD 8.9). Regarding past comorbidities, four (33.3%) had diabetes, 7 (58.3%) had hypertension, three (25%) had past malignancies, five (41.7%) had cardiovascular disorders, and one (8.3%) had mild chronic obstructive pulmonary disorders. At the time of hospitalization, all patients had clinical and radiological features of interstitial pneumonia. Mean time from symptom onset to death was 15.4 days (SD 9.8; range 4–37). Reported causes of death were septic multi-organ failure, respiratory failure, intestinal ischemia in 7 (58.3%), 4 (33.3%) and 1 (8.3) case, respectively; whereas mean time from death to procedure was 1.5 days (SD 0.7; range 0.5–2.8). S1 resulted positive for SARS-CoV-2 in 8 (66.7%) cases, while no positivity was encountered for S2, 3, or 4. In patients with S1 negativity, SARS-CoV-2 was confirmed on lung, kidney and liver specimens.

Conclusions: The present model showed no evidence of SARS-CoV-2 from the aerosol evacuated during laparoscopy in patients died of COVID-19.

SC241 Bacteraemia and bacteria spread into the irrigation fluid during percutaneous nephrolithotomy: a prospective study

E. De Lorenzis, C. Bebi, C. Silvani, L. Boeri, F. Ripa, E. Lievore, A. Gallioli, M. Turetti, G. Lucignani, V. Lo Baido, F. Longo, A. Teri, A. Dodaro, C. Vignati, C. Matinato, G. Albo, R. Colombo, E. Montanari, (Milano)

Author of the Study: Infectious complications (IC) are one of the most common complications of percutaneous nephrolithotomy (PCNL). The backflow of bacterial toxins from the renal pelvis to the bloodstream during fragmentation is the supposed mechanism for. Our aim is to detect bacterial spread into the irrigation fluid and the bloodstream during stone fragmentation. We also correlated pre-operative bladder urine culture (BUC), urine culture during stone fragmentation (SFUC), stone culture (SC) and intra-operative blood cultures (BC) with post-operative IC.

Materials and Methods: 61 patients undergoing PCNL at a single academic center were prospectively evaluated between April 2019 and August 2020. BUC was collected before PCNL, during the procedure SFUCs were collected from the operative channel after stopping the irrigation flow and BCs were sampled both halfway through the fragmentation and during final pyelography. SC was requested in each case. BCs were repeated postoperatively in case of fever. Patients were evaluated postoperatively for IC. We examined concordance between different types of cultures and correlated IC with microbiological and clinical data.

Results: Overall, SFUC was positive in 7/61 (11.5%) procedures. 11 patients (18%) had at least 1 of the 2 samples of intraoperative BC positive and 5/11 had both BCs positive (2 *P. aeruginosa*, 2 *P. mirabilis* and 1 *E. faecalis*). Out of 7 patients with positive SFUC, 6 (85.7%) had a positive BC for the same pathogen and 7/7 a positive SC. BUC was positive in 29 (47.5%) patients and SC in 23 (37.7%). IC occurred in 15 patients (25%): 13 had fever and 2 had sepsis. Among patients with intraoperative positive BC and SFUC, 5 (45.5%) and 3 (42.8%) developed post-operative IC, respectively. Out of several clinical and microbiological considered variables, only pre-operative renal impairment, positive BUC and positive SC were found to be statistically associated with increased rates of IC with a p-value of 0.04; 0.007 and 0.008; respectively. No correlation was found between bacterial spread in the irrigation fluid and blood and IC.

Conclusions: In our study we demonstrated that bacteria can be detected into the irrigation fluid and blood samples collected during PCNL. This transient bacteremia, however, appears to be unrelated to IC development. Our results underline the importance of targeting an extended broad-spectrum prophylaxis on BUC and a post-operative therapy on SC results. The clinical relevance of bacterial spread into blood and irrigation fluid should be evaluated in further studies.

SC242 Real-time PCR-based bacterial detection versus traditional culture of percutaneous nephrolithotomy derived stones: an investigational study

C. Silvani, E. De Lorenzis, C. Bebi, L. Boeri, F. Ripa, E. Lievore, A. Gallioli, M. Turetti, G. Lucignani, V. Lo Baido, F. Longo, A. Teri, A. Dodaro, C. Vignati, C. Matinato, G. Albo, R. Colombo, E. Montanari, (Milano)

Author of the Study: Stone culture (SC) was found to be highly accurate in predicting infectious complications after percutaneous nephrolithotomy (PCNL). Since most complications arise in the first 24 hours after surgery, empirical broad-spectrum antibiotic therapy is usually started and subsequently revised once SC results are available.