eComment: Single-port video-assisted thoracic surgery resection: the Copernican revolution of a geometrical approach in thoracic surgery?

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We read with interest the article of Gonzalez et al. about a single-port approach for video-assisted thoracic surgery (VATS) lower lobectomies. According to previously published literature, single-port VATS resections are technically comparable to standard VATS, in terms of accuracy and efficacy. The potential advantages of a single-port VATS approach are the involvement of only one intercostal space with possible reduction of post-operative pain, and, thereby, speeding recovery and return to work.

Along with surgical technique described by Gaetano Rocco, another possible advantage of single-port VATS resections is the translational approach of the thoracoscope instruments along a sagittal plane, bringing the operative instruments to address the target lesion from a vertical (cranial–caudal) perspective and realizing a projective plane. In the standard three-port approach VATS, the geometric configuration of a lozenge originates interference with the optical source, creating a new ‘optical’ plane with genesis of a dihedral or torsion angle that may not be favorable with the flat (two-dimensional) vision of VATS monitors. Indeed, as stated in the Euclid’s elements, a plane is any flat, two-dimensional surface. The single-port approach pretends that we look at that plane (from a position further out along the camera vision axis) and that there are two parallel lines drawn on the plane (the VATS surgical instruments). From where we are ‘standing’ (given our visual capabilities), we can see only a portion of the plane. If we ‘walk away’ from the plane along the axis, (still looking with a more far shot of thoracoscope camera), we can see more of the plane with an easy approach.

In conclusion, as long as we use two-dimensional monitors in VATS, it will be important to assess the different geometric VATS approach inside the chest realized by the location of ports.

References