A modular suction device for directly handling operable cancerous tumours during surgery

The Invention

Metastases are cancerous tumours that form as a result of a primary tumour. The lung parenchyma is the second most frequented site for such metastases and studies indicate that upon surgical removal of the metastases, the chances of survival improve, as by removing the first site of metastases this disease could potentially be cured.

There is a gap in the market for a surgical instrument that is capable of removing metastases whilst allowing for narrower resection margins and thus saving more vital tissue. The modular suction device opens up the possibility for metasectomies to be available for those patients who would not normally be considered candidates for such a surgery as it stabilised the metastases during surgery. The device works by utilizing a vacuum effect thus contact pressures are not applied onto the metastases. This would help reduce the risk of metastases fracturing during surgery which could potentially result in the spread of the disease.

Novelty

Surgical equipment currently available on the market does not allow for direct contact with metastases. This invention can facilitate the surgeon's ability to achieve desired cutting angles, thereby removing as little healthy tissue as possible. By using this instrument the surgeon would save time and reduce the risk of breakage of metastases.

Although the size of the suction cups can be altered, the suction cups are designed to meet the range of operable tumour sizes. The average size of a lung cancer tumour is 0.5-3cm and an analysis was conducted to develop the best size and shape of the suction cups to yield the best results. The device would connect to normal operating theatre vacuum systems and would be attached to existing/standard pipe fittings.

Application Fields

The device was created for directly handling pulmonary metastases during surgery. However, by altering size of the cup, one could envision the use of such a device for manipulating other tissue types and other scenarios (such as cysts, eyes, breast or liver cancer tumours).

IP Status

The design was registered in January 2015 with the following European Community Design reference numbers; 001428254-0001 (small suction heads); 001428254-0002 (medium suction heads) and 001428254-0003 (large suction heads).

Commercial Interest

We are looking for potential licencees and collaborators to develop a final product for commercialisation.

Lead Inventor

Dr Ing. Philip Farrugia
B.Eng.(Hons),Ph.D.,M.I.E.D.

Dr. Aaron Casha
M.D.(Melit.),M.Phil.(Sheff.),Ph.D.(Melit.),F.R.C.S.(Gen. Surgery),F.E.T.C.S.(Cardio), F.E.T.C.S.(Thoracic),F.R.C.S. (Cardio-Thoracic)

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