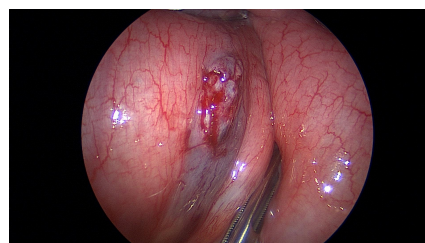
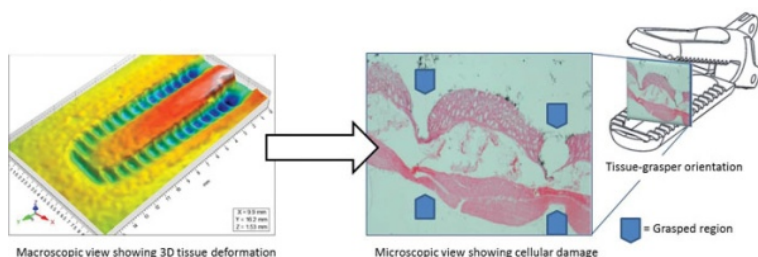


Next Generation Surgical Instruments

The last remaining deficit to the laparoscopic surgeon is the ability to directly feel consistency and texture within tissues.

Problem - surgical trauma:

1. Excessive force applied to tissues contributes to post-operative ileus (15 to 20 percent incidence, prolonged hospital stay)
2. Extensive dissection in major abdominal surgery leads to a systemic inflammatory response (10 percent admitted to ICU after major abdominal surgery, 12 percent mortality)



Problem – absence of tactile feedback

Need for real-time, intra-operative information:

- i. Delineate normal and diseased tissue
- ii. Identify presence of blood vessels

Enhanced intra-operative information:

- i. Assess metabolic and biological activity of diseased tissue.
- ii. Measure oxygenation – to assess (e.g.) tissue viability, wound healing and risk of anastomotic leak.



Emerging fluorescence techniques for image guided surgery

Unmet Clinical Need:

Better devices for minimally invasive surgery to
i) reduce the trauma of surgery and ii) provide more intra-operative information to the surgeon.

