Pilot Study: Improving Endoscopic Gastrointestinal Biopsy Specimen Processing

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BACKGROUND

During gastrointestinal endoscopic procedures, biopsy specimens are usually taken from multiple sites. Each site has previously been sent to the histopathology lab for processing in a separate pot with subsequent transfer by laboratory staff to multiple cassettes before mounting on individual glass slides. It can be difficult when embedding these tiny specimens in wax to be sure of their orientation and when incorrectly orientated, microscopic assessment can be more challenging for the pathologist.

METHOD

We have piloted a study at University Hospital of Wales in which gastrointestinal biopsy specimens, taken at the time of endoscopy, are mounted sequentially and in the correct orientation onto pre-cut filter paper. These can then be sent to the histopathology lab in fewer pots and subsequently mounted, with proper orientation, onto fewer slides. Different sites are identified microscopically but if sequential biopsies are taken from the same site a marker can be placed at one end of the strip to indicate the proximal or distal end.

RESULTS 1

From January to September 2020, with a significant reduction in the anticipated case numbers due to the evolving COVID-19 pandemic, 13 upper and lower gastrointestinal tract specimens were adequate for inclusion in this pilot. We showed a reduction in the number of pots sent, cassettes used and slides produced (n=32 for each) by nearly 25% in relation to the previous practice (n=42 for each). The consultant pathologist reviewing these specimens felt orientation was also improved.

Figure 1: Multiple biopsy specimens orientated on pre-cut filter paper

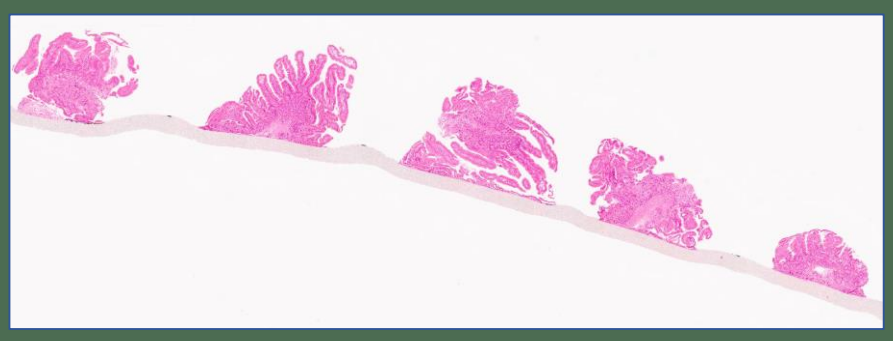

Figure 2: Multiple biopsy specimens orientated on H&E slide for microscopy

RESULTS 2

Analysis of all endoscopic procedures between 28/09/20 and 04/10/20 was undertaken by our gastrointestinal consultant. By extrapolating the number of pots used in the 161 endoscopic procedures undertaken that week, the number of pots used with this technique could be reduced by 75 per week, which equates to 3900 per year.

CONCLUSION

We have demonstrated, in this small pilot, that this technique has economic benefits as shown by a reduction in the number of resources required, particularly plastic materials, improves the efficiency of specimen transfer from pot to cassette by laboratory staff and improves the accuracy of microscopic assessment.

FUTURE

This technique is common practice in many hospitals in England and because of the potential benefits shown by this pilot, we hope to implement its use throughout all gastrointestinal biopsy specimens. This will require training for all staff who perform endoscopies and those who handle specimens within the lab. Microscopic assessment will also need to be carried out by all pathologists in the department to ensure continued adequacy of specimens.