

#597 Evaluating Negative Biopsy Outcomes for Suspicious Bladder Red Patches – Are we overperforming biopsy?

Ms. Asmita Hossain (SHO, Urology), Mr. Papikinos (Consultant, Urology)

Background

Bladder cancer is a common urological malignancy, often detected through flexible cystoscopy as the first-line investigation. During this procedure, red patches on the bladder mucosa are frequently observed, raising suspicion for malignancy. However, not all red patches indicate cancer, leading to a high number of negative biopsies after further assessment with rigid cystoscopy and biopsy.

Guidelines suggest that suspicious bladder lesions should be evaluated with biopsy to rule out malignancy. However, there is an ongoing debate regarding the necessity of biopsy for all red patches, considering the risk of overtreatment, patient discomfort, and healthcare resource utilization.

Results

Total Rigid Cystoscopies: 45
Negative Biopsies: 39 (87%)
Malignancy Detected: 6 (13%)
Age <60 (n=7): All negative
Age >60 (n=38):
Known bladder cancer (n=17): 76% no recurrence (4 – recurrence)
Haematuria/LUTS/rUTI (n=21): 90% no malignancy, **Malignancy: 2 cases (1 CIS)**

Key Insight:
High negative biopsy rate (87%) suggests potential overuse of rigid cystoscopy for red patches. A more selective approach may improve resource use.

Category	Details	Number	Negative biopsy result
Age <60	Total -	7	All (Cystitis/Chronic inflammation in Histology)
	Haematuria/LUTS/rUTI	6	
	Diagnosed bladder cancer	1	
Age >60	Total	38	
	Known bladder cancer	17	13 – no recurrence in Histology 4 recurrence
	Haematuria/rUTI/LUTS	21	19 - No malignancy. (Chronic inflammation/cystitis in histology) 2 -Malignancy (1 CIS)

Objective

The objective of this audit is to determine the percentage of negative biopsy results following the request of bladder biopsy done after flexible cystoscopy for patients with suspicious red patches on the bladder wall.

These patients presented with hematuria, LUTS, recurrent urinary tract infections (rUTI), or are under bladder cancer surveillance.

Method

We reviewed data from March 1st to June 30th, 2024. A total of 968 flexible cystoscopies were done by Specialty Registrars (SpR) and 211 by Specialist Nurses (NS).

Figure 1: Proportion of Negative vs. Malignant Biopsy Outcomes

Outcome	Percentage
Negative Biopsy	87.0%
Malignancy Detected	13.0%

Figure 2: Symptoms in Malignancy-Detected Cases

Symptom	Percentage
Known Bladder Cancer	66.7%
LUTS + Visible Hematuria	33.3%
CIS with LUTS	0%

Figure 3: Biopsy Requisitions & Outcomes

Metric	Value
Total Biopsy Requisitions	45.0
Negative Biopsy Results	39.0
Total Flexible Cystoscopy	1179.0
Biopsy Requisition Rate	3.81

The classic appearance of carcinoma in situ as a flat, velvety patch.

Interstitial cystitis

Recurrent UTI

Bladder pain syndrome

Conclusion

The findings demonstrate that a good number of biopsy results are negative for malignancy, suggesting that some could potentially be avoided through better clinical judgment, senior review and pre-biopsy evaluation.

Action Plan

- Senior Review for Red Patches**
Implement a senior clinician review system for red patches detected during cystoscopy. Use Cerner to upload and store cystoscopy images for remote assessment before biopsy decisions.
- Identifying Predisposing Factors**
Take a detailed patient history to identify factors like recurrent UTIs, chronic cystitis, and long-term catheter use (LTC). Perform urine dipstick (MSU) or culture tests to rule out infections before proceeding with biopsy.
- Audit & Feedback**
Conduct a follow-up audit to assess the effectiveness of these measures. Provide feedback to teams on reducing unnecessary biopsies while maintaining diagnostic accuracy.

References

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