Clinicopathological Determinants of Outcome in Vulval Cancer: a Retrospective Observational Study

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Aims

- Define the clinicopathological features and demographics of the vulval cancer (VC) population of the North East and Cumbria
- Assess the impact of these clinicopathological and demographic factors on overall survival (OS) in VC, with a focus on deprivation

Background

- Vulval cancer is a rare disease and knowledge of determinants of survival outcome is limited
- Surgery is the mainstay of treatment but late presentation results in the need for radical, often disfiguring procedures, which are associated with significant physical and psychosocial morbidity
- Identification of determinants of outcome could enable more personalised approaches to treatment and inform the development of public health interventions

Methods

- Retrospective study of all patients diagnosed with VC in the North East and Cumbria, from January 2011 - December 2020
- Patient demographics alongside pathological, staging and treatment data were extracted from electronic databases and patient records.
- Deprivation was measured using Index of Multiple Deprivation (IMD) scores, generated from patient postcode
- Statistical analysis was performed in SPSS as outlined below:

Descriptive statistics → Kaplan-Meier analysis → Cox Proportional Hazards model

Results

- Patient demographics (n=406) are shown in *Table 1*
- The majority of VCs were squamous cell carcinomas, commonly arising from precancerous skin changes (VIN), *Figure 2*
- Emergency presentation was more prevalent in the most deprived individuals, whereas the least deprived patients were more likely to present via engagement with primary care, *Figure 3*
- In univariate analysis, age (p<0.001), advanced stage (p<0.001, *Figure 4*), and non-standard treatment (as defined by the Royal College of Obstetricians and Gynaecologists guideline, p<0.001) were associated with poorer overall survival
- A Cox Proportional Hazards model combining age, deprivation, stage and completion of standard treatment confirmed these factors as independent significant prognostic variables, *Figure 5*

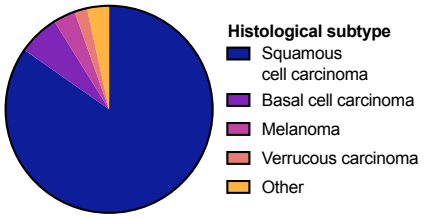

Figure 2: Pie chart showing the distribution of histological subtypes of vulval cancer

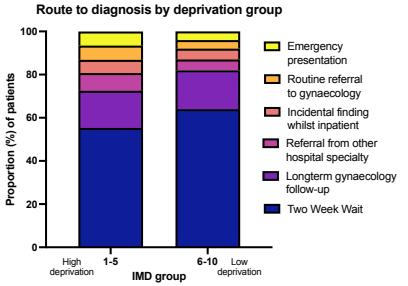

Figure 3: Bar chart illustrating route to diagnosis by deprivation group

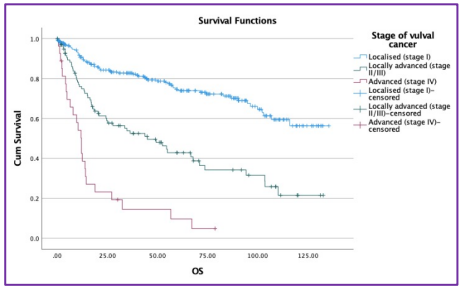

Figure 4: Kaplan-Meier curve comparing OS by stage, (p<0.001)

Covariate	Hazard Ratio	P-value	95% Confidence Interval
Deprivation		0.005	
Low deprivation (IMD 6-10)	Ref		
High deprivation (IMD 1-5)	1.737	0.005	1.183, 2.550
Age		<0.001	
<60	Ref		
60-79.9	2.162	0.002	1.319, 3.543
≥80	5.765	<0.001	3.355, 9.906
Standard treatment		0.002	
Yes	Ref		
No	1.866	0.002	1.269, 2.743
Stage		<0.001	
Localised	Ref		
Locally advanced	2.260	<0.001	1.558, 3.277
Advanced	8.816	<0.001	5.076, 15.314

Figure 5: A Cox Proportional Hazards model showing relative risk of death for various patient factors

Patient Characteristic		Median (range)
Age (years)		70.0 (21.0-97.4)
Progression-free survival (months)		21.7 (0.2-122.2)
Overall survival (months)		15.1 (0.1-116.0)
Length of follow-up (months)		34.9 (0.1-135.5)
Patient Characteristic		**Frequency (%)**
Deprivation group	IMD 1-5 (Most deprived)	290 (71.6)
	IMD 6-10 (Least deprived)	95 (28.4)
Clinical stage (FIGO stage)	Localised (I)	277 (68.7)
	Locally advanced (II/III)	99 (24.6)
	Advanced (IV)	27 (6.7)

Table 1: Cohort demographics, n=405 for deprivation group as one patient postcode was unavailable, n=403 for stage as three patients were unstaged

Conclusions

- Deprivation is prevalent amongst the VC population of the North East and Cumbria
- High deprivation, increased age, non-standard treatment, and advanced stage disease are negative predictors of OS in VC
- Vulval cancer patients are not a homogenous group and represent a range of pathological and patient factors which must be considered when creating management plans for individuals

Implications for practice

- This study demonstrates the importance of counselling regarding standard/non-standard treatment options, irrespective of age
- Late presentation with advanced disease is an important area of unmet patient need
- Barriers to early diagnosis are likely to be multifactorial but may reflect patient factors (embarrassment, low rates of self-examination) or professional (lack of familiarity, avoidance of patient examination)
- Further exploration of such barriers may inform public health interventions which might be best targeted to older, socioeconomically deprived women.