Carcinoma of the Vulva

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STAGING

Anatomy

Primary site

Cases should be classified as carcinoma of the vulva when the primary site of growth is in the vulva. Tumors present in the vulva as secondary growths, from either a genital or extra-genital site, have to be excluded. Malignant melanoma should be separately reported. A carcinoma of the vulva that extends into the vagina should be considered as a carcinoma of the vulva. There must be histologic confirmation of the cancer.

Nodal stations

The femoral and inguinal nodes are the sites of regional spread.

Metastatic sites

Involvement of pelvic lymph nodes (external, hypogastric obturator and common iliac) are considered distant metastasis.

Table 1
Carcinoma of the vulva: FIGO nomenclature

Stage 0	Carcinoma *in situ*, intraepithelial neoplasia Grade III
Stage I	Lesions $\leqslant 2$ cm in size, confined to the vulva or perineum, no nodal metastasis
	Ia Lesions $\leqslant 2$ cm in size, confined to the vulva or perineum and with stromal invasion $\leqslant 1.0$ mm*, no nodal metastasis
	Ib Lesions $\leqslant 2$ cm in size, confined to the vulva or perineum and with stromal invasion >1.0 mm*, no nodal metastasis
Stage II	Tumor confined to the vulva and/or perineum; >2 cm in greatest dimension; no nodal metastasis
Stage III	Tumor of any size with adjacent spread of the lower urethra and/or the vagina, or the anus, and/or unilateral regional lymph node metastasis
Stage IV	IVa Tumor invades any of the following: upper urethra, bladder mucosa, rectal mucosa, pelvic bone, and/or bilateral regional node metastases
	IVb Any distant metastasis including pelvic lymph nodes

* The depth of invasion is defined as the measurement of the tumor from the epithelial–stromal junction of the adjacent most superficial dermal papilla to the deepest point of invasion.

Surgical staging classification

Definitions of the surgical stages in carcinoma of the vulva

Vulvar cancer has been surgically staged since 1988. The final diagnosis is dependent upon thorough histopathologic evaluation of the operative specimen (vulva and lymph nodes). Various modifications have been made with a sub-division of Stage I in 1994.

Histopathologic types

Squamous cell carcinoma is the most frequent form of cancer of the vulva. Malignant melanoma should be reported separately. The histopathologic types are:

- Vulvar intraepithelial neoplasia, Grade III, squamous cell carcinoma *in situ*
- Squamous cell carcinoma
- Verrucous carcinoma
- Paget's disease of vulva
- Adenocarcinoma, not otherwise specified (NOS)
- Basal cell carcinoma, NOS
- Bartholin gland carcinoma

Table 2
Carcinoma of the vulva: Stage grouping for vulvar cancer

FIGO	UICC		
	T	N	M
0	Tis	N0	M0
Ia	T1a	N0	M0
Ib	T1b	N0	M0
II	T2	N0	M0
III	T1	N1	M0
	T2	N1	M0
	T3	N0	M0
	T3	N1	M0
IVa	T1	N2	M0
	T2	N2	M0
	T3	N2	M0
	T4	Any N	M0
IVb	Any T	Any N	M1

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Table 3
Carcinoma of the vulva: Definitions of treatments

Treatment	Definition
None	No treatment
Surgery alone	Surgery as first therapy and no other therapy(ies) within 90 days from the date of surgery. Subsequently, patients can be given any further treatment.
Radiotherapy alone	External radiotherapy and/or brachytherapy as first therapy(ies) and no other therapy(ies) within 90 days from the end of teletherapy/brachytherapy. Subsequently, patients can be given any further treatment.
Radio-surgery	Brachytherapy and/or external radiotherapy as first therapy(ies) and then surgery within 60 days from the end of brachytherapy/teletherapy. Subsequently, patients can be given any further treatment.
Neoadjuvant chemotherapy + surgery	Two to four cycles of chemotherapy as first therapy and then surgery. Subsequently, patients can be given any further treatment.
Surgery + adjuvant radiotherapy	Surgery as first therapy and then external radiotherapy and/or brachytherapy within 90 days from the date of surgery. Subsequently, patients can be given any further treatment.
Surgery + adjuvant chemotherapy	Surgery as first therapy and then chemotherapy within 90 days from the date of surgery.
Chemo-radiotherapy	Radiotherapy with chemotherapy (either neoadjuvant, concomitant or sequential) administered together or at least within 90 days from the end of either therapy.
Adjuvant hormonal therapy	Surgery or radiotherapy or chemo-radiotherapy as first therapy and then hormonal therapy within 90 days from the end of surgery/radiotherapy/chemo-radiotherapy. Subsequently, patients can be given any further treatment.

Histopathologic grade (G)
- GX: Grade cannot be assessed
- G1: Well differentiated
- G2: Moderately differentiated
- G3: Poorly or undifferentiated

DEFINITIONS OF TREATMENTS

Treatment definitions are given in Table 3.

DATA ANALYSIS

Summary and comments

The data presented in this volume was collected from 61 institutions and includes 1127 patients. Only half of these medical centers have treated 15 women or more in the reported three years period. Interestingly, these centers provided 85% of all the patients in the Report. As carcinoma of the vulva is indeed a relatively rare disease, centralizing the care for these women in fewer medical centers nationally is of paramount importance and should be encouraged.

The disease is by far a disease of elderly women, and thus 71.3% of all patients were in their seventh decade or more. However, *in-situ* epidermoid disease is seen in much younger women, mean age 52.4 years.

The majority of patients are seen in the "Surgical Stages" Ia, Ib and II, a very important shift of the stage distribution reflecting awareness of both patients and physicians to vulvar lesions probably eliminating the well-known phenomenon of patient or doctors' delay.

The overwhelming treatment for Stage 0, Stage I and II disease is surgery (Table 5, 6, 12), but as disease stage progresses the use of radiation therapy, mostly in the adjuvant setting becomes more common. In the more advanced Stages III, IV, radiotherapy as well as surgery and adjuvant chemotherapy are provided more often. Neoadjuvant therapy has not been implemented widely in this disease.

Patients evaluable for response to therapy were only 649, and 72% of those were defined as having complete response to initial therapy including patients in Stage III and IV. Obviously, this observation is the result of surgical removal of the primary tumor.

Survival data are available for 531 patients with epidermoid invasive cancer only and the FIGO stage appears to be a strong predictor for survival. The 5-year survival was 76.9%, 54.8% and 30.8% for Stages I through III, respectively. For clinical staging (440 pts), the decline in the 5-year survival was also apparent being 76.4%, 51.6% and 26.8% for T1, T2 and T3 tumors, respectively.

Evaluating age as a prognostic factor, it becomes clear that older age carries a reduced survival. While a woman

Table 4
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients by center and stage

		All	Not available	Stage 0	Stage I	Stage II	Stage III	Stage IV
All centres		1127	92	127	290	340	203	75
South Africa	Pretoria (G Lindeque)	18	–	5	4	3	6	–
Argentina	Buenos Aires (R Testa)	3	–	–	1	1	1	–
	Neuquén (GH Focaccia)	3	1	–	–	1	1	–
	Santa Fe (A Ellena)	3	–	–	1	1	1	–
Brazil	Porto Alegre (G Py Gomez da Silveira)	10	–	–	–	5	2	3
Chile	Temuco (I Capurro)	2	–	–	–	–	2	–
USA	Baltimore MA (F Montz, RE Bristow)	16	1	6	9	–	–	–
	Columbus OH (J Fowler)	23	–	3	4	9	4	3
	Jacksonville FL (BU Sevin)	10	–	2	4	3	1	–
	Nashville TN (HW Jones)	76	1	36	14	13	10	2
	New York NY (R Barakat)	31	–	2	13	10	5	1
	Orange CA (PJ DiSaia)	24	–	9	4	2	4	5
Uruguay	Montevideo (G Arribeltz)	5	–	–	1	2	2	–
China	Hong Kong (HSY Ngan)	9	–	3	–	–	5	1
	Hong Kong (VSY Yu)	2	–	–	2	–	–	–
India	Bangalore (KU Devi)	16	–	–	3	6	6	1
Indonesia	Medan (M Fauzie Sahil)	4	–	–	–	2	1	1
Japan	Kumamoto (H Okamura)	2	–	1	1	–	–	–
	Nagasaki (T Ishimaru)	4	–	–	1	–	3	–
	Osaka (A Suzuki)	1	–	–	1	–	–	–
	Sagamihara (H Kuramoto)	2	–	–	1	1	–	–
Korea	Seoul (HP Lee)	4	–	–	2	2	–	–
	Seoul (JE Mok)	4	–	–	2	1	1	–
Philippines	Manila (AM Manalo)	6	–	–	–	2	1	3
Thailand	Bangkok (V Linasmita)	14	–	2	2	8	2	–
	Songkhla (V Wootipoom)	12	–	–	3	5	2	2
Austria	Graz (R Winter)	59	–	21	9	18	10	1
	Innsbruck (C Marth)	26	4	–	11	7	4	–
Croatia	Zagreb (S Jukić)	56	42	–	6	5	1	2
Czech Republic	Brno (A Dörr)	36	1	3	8	14	5	5
	Prague (E Kmoníčková)	17	–	–	3	7	4	3
Finland	Turku (T Salmi)	30	–	5	11	7	5	2
France	Bordeaux (ML Campo)	8	–	2	6	–	–	–
	Grenoble (P Bernard)	9	–	–	3	4	2	–
	Lille (E Leblanc)	27	–	1	10	11	3	2
Germany	Hannover (H Kühnle)	12	–	3	2	3	2	2
	Jena (A Schneider)	17	–	2	7	6	1	1
	Kiel (D Weisner)	20	–	–	9	8	2	1
	Würzburg (J Dietl)	24	2	2	8	9	3	–
Greece	Athens (S Michalas)	14	–	1	5	5	2	1
Italy	Brescia (S Pecorelli)	1	–	–	1	–	–	–
	Genova (N Ragni)	4	–	–	1	3	–	–

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Table 4, *continued*

		All	Not available	Stage 0	Stage I	Stage II	Stage III	Stage IV
	Trento (E Arisi)	1	–	–	–	1	–	–
Poland	Wrocław (J Kornafel, J Błaszczyk)	32	1	1	14	6	10	–
Portugal	Coimbra (C Freire de Oliveira)	15	–	–	2	5	7	1
	Coimbra (D Pereira da Silva)	10	–	1	2	3	2	2
	Coimbra (O Campos)	29	28	–	–	–	–	1
Slovakia	Bratislava (J Kállay)	51	–	–	12	35	4	–
Slovenia	Maribor (I Takač)	9	–	–	4	1	2	2
Spain	Barcelona (S Dexeus)	13	–	8	2	2	1	–
	Barcelona (J Pahisa Fabregas)	16	–	–	7	6	3	–
	Barcelona (A Gil Moreno)	21	–	–	6	10	5	–
	Cruces–Baracaldo (FJ Rodríguez–Escudero)	24	–	2	7	8	4	3
	Las Palmas de Gran Canaria (O Falcón Vizcaino)	18	–	1	4	6	7	–
	Madrid (F Calero Cuerda)	19	–	1	9	7	2	–
	Madrid (P de La Fuente)	24	–	3	7	3	8	3
Sweden	Gothenburg (G Horvath)	46	2	1	6	11	17	9
	Örebro (B Sorbe)	35	–	–	14	14	5	2
Switzerland	Basel (W Holzgreve)	1	–	–	–	1	–	–
Ukraine	Odessa (AA Zelinsky)	65	–	–	12	31	13	9
Australia	Carlton (M Quinn)	34	9	–	9	6	9	1

Table 5
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage 0), n = 127

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
All	127	2	88	–	–	–	1	–	–	–	9
South Africa	5	–	100	–	–	–	–	–	–	–	–
USA	58	3	97	–	–	–	–	–	–	–	–
China	3	–	67	–	–	–	33	–	–	–	–
Japan	1	–	100	–	–	–	–	–	–	–	–
Thailand	2	–	100	–	–	–	–	–	–	–	–
Austria	21	–	43	–	–	–	–	–	–	–	57
Czech Republic	3	–	100	–	–	–	–	–	–	–	–
Finland	5	–	100	–	–	–	–	–	–	–	–
France	3	–	100	–	–	–	–	–	–	–	–
Germany	7	–	100	–	–	–	–	–	–	–	–
Greece	1	–	100	–	–	–	–	–	–	–	–
Poland	1	–	100	–	–	–	–	–	–	–	–
Portugal	1	–	100	–	–	–	–	–	–	–	–
Spain	15	–	100	–	–	–	–	–	–	–	–
Sweden	1	–	100	–	–	–	–	–	–	–	–

in her fifth decade with vulvar cancer has an 81.2% 5-year survival, the one in her eighth decade has only 47.8% 5-year survival.

The association between survival and histology did not demonstrate a major independent histological impact especially since epidermoid tumor is by far the most common and evaluable tumor.

Tumor size was again demonstrated to be a very important prognostic factor and small, <2 cm lesions bear a 70% 5-year survival.

Nodal status has been shown in the past to be an extremely important predictor for survival, yet even today nodes are not assessed in 61.2% (328/531) of women treated for epidermoid cancer. Once found positive, the survival drops significantly from 68.7% for negative nodes, to 14% for 3–4 positive nodes.

Of interest is the observation in Figure 9 where analysis of 221 patients demonstrates that adjuvant radiation therapy is capable of improving the survival of patients with positive lymph nodes, but has no effect when the nodes are not involved.

Finally, in a multivariate analysis it is shown that for each stage advanced age, lymph node status and treatment modality are of independent statistical significance. Thus, age over 65, positive lymph nodes and radiation therapy alone are predictors of bad outcome in epidermoid vulvar cancer.

Table 6
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage I), n = 290

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
All	290	1	88	1	2	1	5	1	0	0	1
South Africa	4	–	100	–	–	–	–	–	–	–	–
Argentina	2	–	100	–	–	–	–	–	–	–	–
USA	48	–	92	–	2	2	2	–	2	–	–
Uruguay	1	–	100	–	–	–	–	–	–	–	–
China	2	–	100	–	–	–	–	–	–	–	–
India	3	–	67	–	–	33	–	–	–	–	–
Japan	4	–	100	–	–	–	–	–	–	–	–
Korea	4	–	100	–	–	–	–	–	–	–	–
Thailand	5	–	100	–	–	–	–	–	–	–	–
Austria	20	–	90	–	–	–	10	–	–	–	–
Croatia	6	–	100	–	–	–	–	–	–	–	–
Czech Republic	11	–	91	–	–	–	9	–	–	–	–
Finland	11	–	100	–	–	–	–	–	–	–	–
France	19	–	95	–	–	–	5	–	–	–	–
Germany	26	–	85	–	4	–	8	4	–	–	–
Greece	5	–	100	–	–	–	–	–	–	–	–
Italy	2	–	100	–	–	–	–	–	–	–	–
Poland	14	–	93	7	–	–	–	–	–	–	–
Portugal	4	–	75	–	–	–	–	25	–	–	–
Slovakia	12	–	92	–	–	–	–	–	–	–	8
Slovenia	4	–	75	–	–	–	–	–	–	25	–
Spain	42	5	93	–	–	–	2	–	–	–	–
Sweden	20	–	70	–	10	–	20	–	–	–	–
Ukraine	12	–	50	8	8	–	25	–	–	–	8
Australia	9	–	78	–	–	–	–	–	–	–	22

Table 7
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage II), n = 340

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
All	340	3	68	4	3	1	19	1	0	–	2
South Africa	3	–	100	–	–	–	–	–	–	–	–
Argentina	3	–	100	–	–	–	–	–	–	–	–
Brazil	5	–	100	–	–	–	–	–	–	–	–
USA	37	3	89	3	–	–	5	–	–	–	–
Uruguay	2	–	–	–	–	–	100	–	–	–	–
India	6	–	17	–	–	17	50	17	–	–	–
Indonesia	2	–	50	50	–	–	–	–	–	–	–
Japan	1	–	–	–	–	100	–	–	–	–	–
Korea	3	–	100	–	–	–	–	–	–	–	–
Philippines	2	50	50	–	–	–	–	–	–	–	–
Thailand	13	–	69	8	–	–	23	–	–	–	–
Austria	25	4	60	8	12	–	12	–	–	–	4
Croatia	5	–	100	–	–	–	–	–	–	–	–
Czech Republic	21	–	43	5	–	–	43	–	5	–	5
Finland	7	–	57	–	–	–	43	–	–	–	–
France	15	–	73	–	–	–	20	–	–	–	7
Germany	26	–	81	–	–	–	15	4	–	–	–
Greece	5	–	100	–	–	–	–	–	–	–	–
Italy	4	–	75	–	–	–	25	–	–	–	–
Poland	6	–	67	–	17	–	17	–	–	–	–
Portugal	8	–	75	13	–	–	–	–	–	–	13
Slovakia	35	–	71	–	–	–	26	3	–	–	–
Slovenia	1	–	100	–	–	–	–	–	–	–	–
Spain	42	2	79	–	–	–	17	–	–	–	2
Sweden	25	–	52	12	16	–	20	–	–	–	–
Switzerland	1	–	–	–	–	–	100	–	–	–	–
Ukraine	31	16	35	6	6	–	29	–	–	–	6
Australia	6	–	83	–	–	–	–	–	–	–	17

Table 8
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage III), n = 203

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
All	203	0	3	29	16	6	3	30	2	2	6
South Africa	6	17	–	83	–	–	–	–	–	–	–
Argentina	3	–	33	67	–	–	–	–	–	–	–
Brazil	2	–	–	100	–	–	–	–	–	–	–
Chile	2	–	–	50	–	–	–	50	–	–	–
USA	24	–	4	54	4	8	–	25	4	–	–

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Table 8, *continued*

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
Uruguay	2	–	–	–	50	–	–	–	–	50	–
China	5	–	–	20	40	–	–	20	–	–	20
India	6	–	–	17	–	–	67	17	–	–	–
Indonesia	1	–	100	–	–	–	–	–	–	–	–
Japan	3	–	–	–	–	–	67	–	–	33	–
Korea	1	–	–	–	–	–	–	100	–	–	–
Philippines	1	–	–	–	–	–	–	100	–	–	–
Thailand	4	–	–	–	50	–	–	50	–	–	–
Austria	14	–	–	57	7	–	–	36	–	–	–
Croatia	1	–	–	–	–	–	–	–	–	100	–
Czech Republic	9	–	–	–	56	–	–	44	–	–	–
Finland	5	–	–	–	–	20	–	80	–	–	–
France	5	–	–	60	–	–	–	–	20	–	20
Germany	8	–	–	50	13	–	–	38	–	–	–
Greece	2	–	–	50	–	–	–	50	–	–	–
Poland	10	–	–	30	–	–	–	30	10	10	20
Portugal	9	–	–	–	11	11	–	22	–	11	44
Slovakia	4	–	–	25	–	–	–	75	–	–	–
Slovenia	2	–	–	100	–	–	–	–	–	–	–
Spain	30	–	7	17	13	–	3	57	3	–	–
Sweden	22	–	–	9	36	41	–	9	–	–	5
Ukraine	13	–	15	23	46	–	–	8	–	–	8
Australia	9	–	–	22	11	–	–	33	–	–	33

Table 9
Carcinoma of the vulva: patients treated in 1996–98. Distribution of patients (%) by country and treatment (Stage IV), n = 75

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
All	75	3	17	15	12	8	1	28	1	7	8
Brazil	3	–	33	33	–	–	–	33	–	–	–
USA	11	–	–	27	–	9	–	27	–	18	18
China	1	–	–	–	–	–	–	–	–	100	–
India	1	–	–	–	–	–	100	–	–	–	–
Indonesia	1	–	–	–	–	–	–	100	–	–	–
Philippines	3	–	67	–	33	–	–	–	–	–	–
Thailand	2	50	50	–	–	–	–	–	–	–	–
Austria	1	–	–	–	–	100	–	–	–	–	–
Croatia	2	–	–	–	–	–	–	50	–	50	–
Czech Republic	8	–	13	–	13	–	–	63	–	13	–
Finland	2	–	–	–	–	–	–	100	–	–	–
France	2	–	–	–	–	–	–	100	–	–	–

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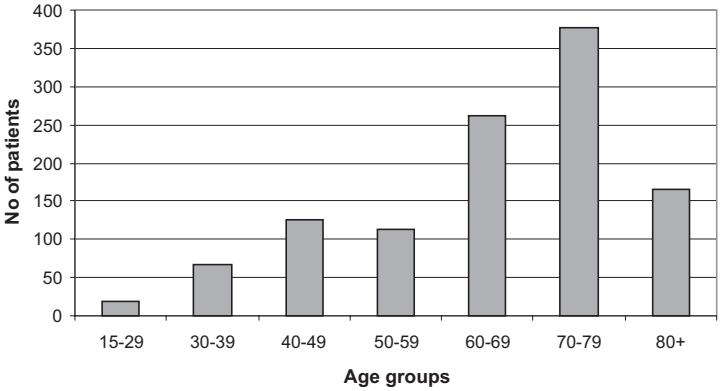
Table 9, *continued*

Country	Number of patients	First line of treatment (%)									
		None	Surgery alone	RT alone	Radio-surgery	Neoadj CT	Surg + adj RT	Surg + adj CT	CT + RT	Adj Horm	Other non-standard
Germany	4	–	25	50	25	–	–	–	–	–	–
Greece	1	100	–	–	–	–	–	–	–	–	–
Portugal	4	–	–	–	25	–	–	75	–	–	–
Slovenia	2	–	–	50	–	–	–	–	–	–	50
Spain	6	–	33	17	17	–	–	17	17	–	–
Sweden	11	–	9	–	27	36	–	9	–	–	18
Ukraine	9	–	44	33	11	–	–	–	–	–	11
Australia	1	–	–	–	–	–	–	100	–	–	–



Age groups	Patients (*n*)	Percentage (%)
15–29	18	1.6
30–39	67	5.9
40–49	125	11.1
50–59	113	10.0
60–69	261	23.2
70–79	378	33.5
80+	165	14.6
Total	1127	100.0

Fig. 1. Carcinoma of the vulva: patients treated in 1996–98. Distribution by age groups.

Table 10
Carcinoma of the vulva: patients treated in 1996–98. Mean age by stage and histologic type

	All	Missing	0	Ia	Ib	II	III	IVa	IVb
Missing	61.3	69.0	43.0	45.0	43.0	–	87.0	85.0	86.0
In situ epidermoid	52.4	45.0	51.4	52.3	53.8	77.3	71.0	–	–
Verrucous	69.3	74.5	–	65.0	68.0	69.5	74.4	–	–
Basal cell	64.9	48.0	63.3	68.6	60.0	65.1	74.5	–	70.0
Bartholin gland	65.5	–	–	67.5	67.0	70.8	49.2	–	–
Epidermoid	67.0	70.2	52.1	59.2	67.5	69.9	69.1	64.5	65.5
Adenocarcinoma	65.8	62.0	–	64.2	61.0	67.7	66.0	66.0	–
Other	63.8	77.5	64.8	58.0	64.7	60.9	64.1	58.5	74.0
ALL	65.3	70.4	52.2	59.9	66.3	69.0	68.6	64.3	66.9

Table 11
Carcinoma of the vulva: patients treated in 1996–98. Stage distribution by histologic type

	All	Missing	0	Ia	Ib	II	III	IVa	IVb
Missing	10	2	3	1	1	0	1	1	1
In situ epidermoid	102	2	85	7	4	3	1	0	0
Verrucous	31	2	0	7	6	11	5	0	0
Basal cell	37	1	3	9	8	13	2	0	1
Bartholin gland	27	0	0	6	4	12	5	0	0
Epidermoid	806	71	31	103	105	261	174	39	22
Adenocarcinoma	26	1	0	5	2	11	3	4	0
Other	88	13	5	15	7	29	12	6	1
ALL	1127	92	127	153	137	340	203	50	25

Table 12
Carcinoma of the vulva: patients treated in 1996–98. Mode of treatment by stage

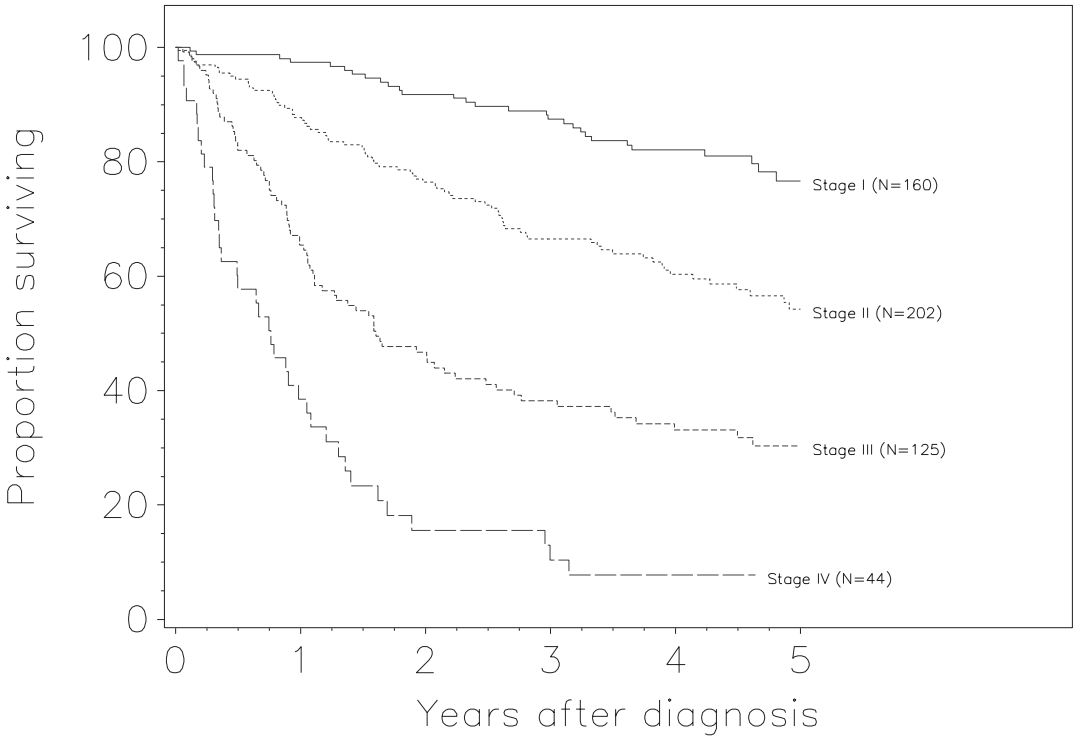
	All	Missing	0	Ia	Ib	II	III	IVa	IVb
No treatment	44	11	2	0	2	9	7	9	4
Surgery alone	690	22	112	134	122	230	59	8	3
RT alone	75	19	0	2	0	12	33	3	6
Radio-surgery	36	2	0	3	2	10	13	1	5
Neoadjuvant CT + surgery	14	2	0	1	1	2	7	1	0
Surgery + adj RT	170	7	1	9	6	65	61	18	3
Surgery + adj CT	11	1	0	2	0	3	4	1	0
CT + RT	30	18	0	1	0	1	5	4	1
Adj hormono	1	0	0	0	1	0	0	0	0
Other	51	8	12	1	3	8	13	3	3

Table 13
Carcinoma of the vulva: patients treated in 1996–98. Response to treatment by stage

	All	Missing	0	Ia	Ib	II	III	IVa	IVb
Missing	409	47	37	43	55	120	78	15	14
Complete response	468	6	67	90	65	163	65	11	1
Partial response	68	24	2	1	2	17	11	8	3
Stable disease	54	8	5	8	4	8	17	3	1
Progressive disease	59	5	3	5	5	13	14	11	3
Not assessable	69	2	13	6	6	19	18	2	3

Table 14
Carcinoma of the vulva: patients treated in 1996–98. Relapses by stage

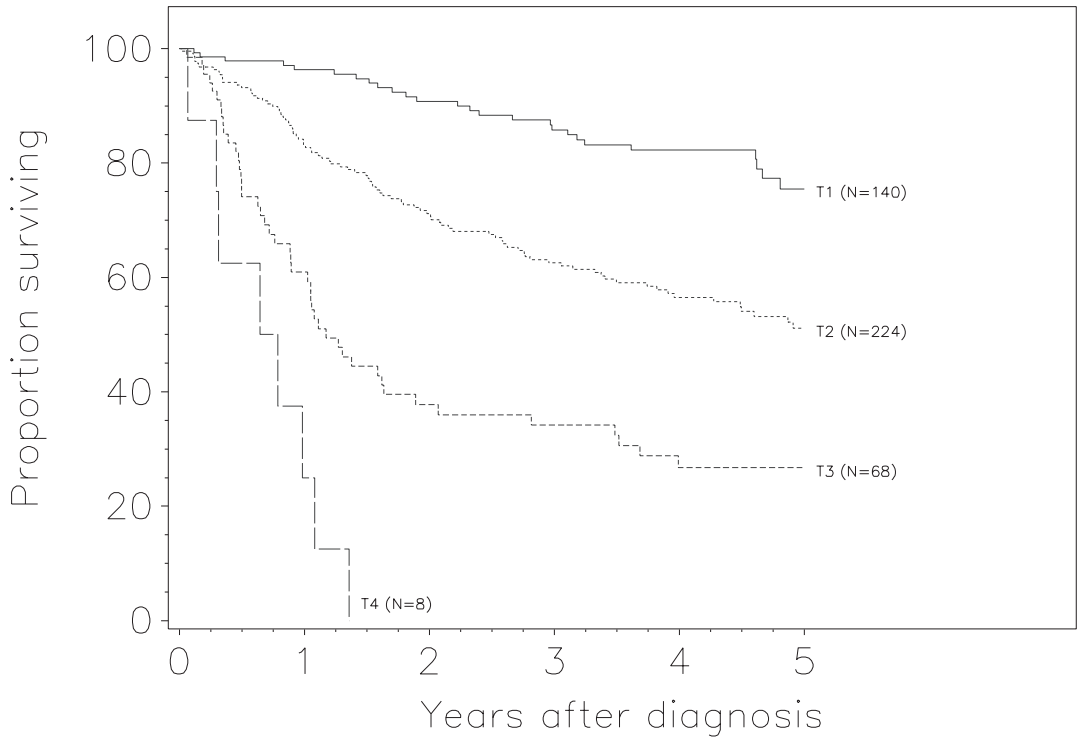
Site of relapse	All	Missing	0	Ia	Ib	II	III	IVa	IVb
Local (regional)	110	9	17	13	14	36	17	4	0
Metastatic	16	1	0	2	3	5	4	1	0
Local and metastatic	8	1	0	1	0	2	0	3	1
Missing site	402	19	52	75	50	137	55	11	3
Total	536	30	69	91	67	180	76	19	4



Stage	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
I	160	63.3	97.4	92.0	87.6	81.8	76.9	Reference
II	202	70.2	87.8	76.5	66.6	60.5	54.8	2.1 (1.4–3.3)
III	125	71.0	66.0	47.1	38.6	33.4	30.8	4.7 (3.1–7.3)
IV	44	65.8	39.5	16.6	11.1	8.3	–	19.3 (11.3–32.9)

[a] Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

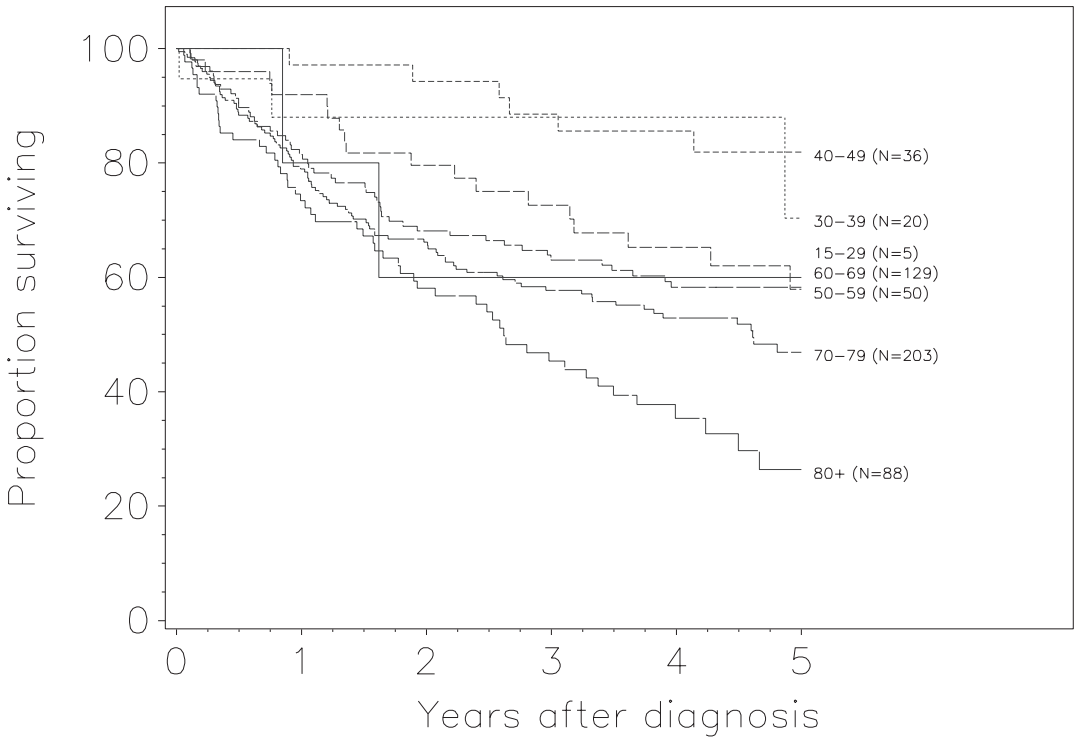
Fig. 2. Carcinoma of the vulva: patients treated in 1996–98. Survival by FIGO stage (epidermoid invasive cancer only), $n = 531$.



Stage	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
T1	140	63.5	96.3	90.9	86.0	82.1	76.4	Reference
T2	224	69.4	83.4	71.4	62.8	56.6	51.6	2.5 (1.6–3.8)
T3	68	70.7	61.5	37.9	34.4	26.8	26.8	6.9 (4.2–11.6)
T4	8	72.3	25.0	–	–	–	–	22.4 (9.4–53.2)

[a] Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

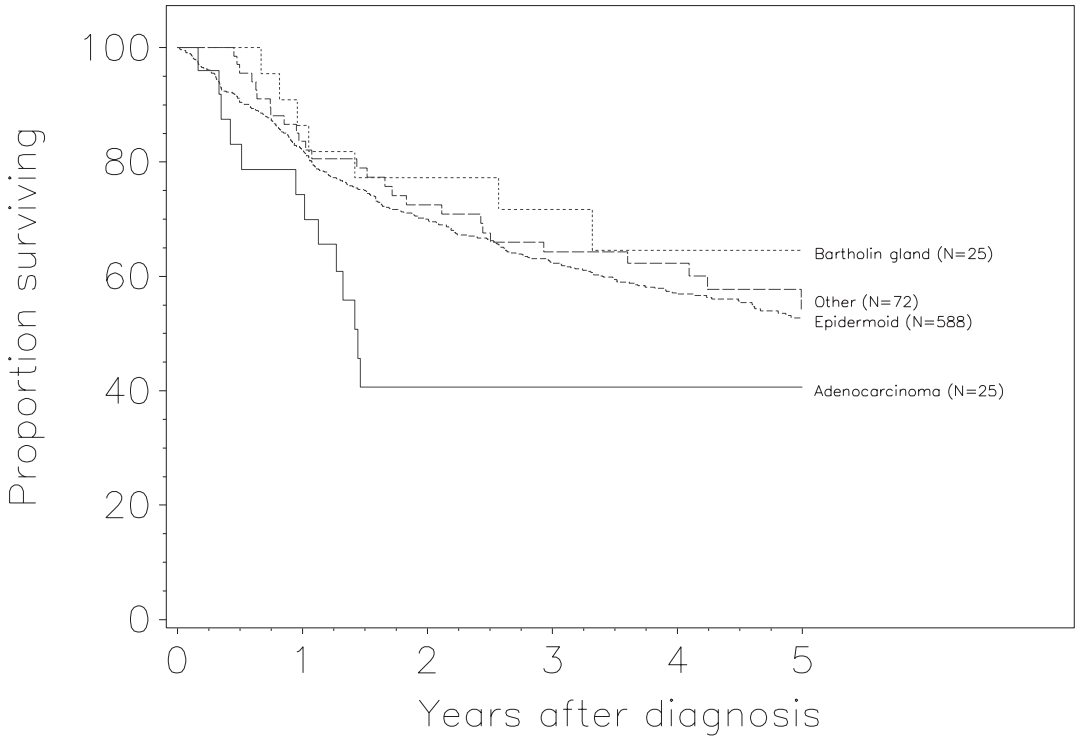
Fig. 3. Carcinoma of the vulva: patients treated in 1996–98. Survival by clinical stage (epidermoid invasive cancer only), $n = 440$.



Age group	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
15–29	5	25.2	80.0	60.0	60.0	60.0	60.0	0.8 (0.2–3.4)
30–39	20	35.8	88.6	88.6	88.6	88.6	75.9	0.8 (0.2–2.6)
40–49	36	44.1	97.2	94.3	88.5	85.4	81.2	0.3 (0.1–0.8)
50–59	50	54.6	91.9	79.2	72.4	64.6	58.0	Reference
60–69	129	65.1	81.7	68.3	63.2	58.6	58.6	1.3 (0.8–2.3)
70–79	203	74.3	79.1	66.4	57.9	53.0	47.8	1.5 (0.9–2.6)
80+	88	84.6	73.3	58.2	45.8	35.2	27.1	2.5 (1.4–4.4)

[a] Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

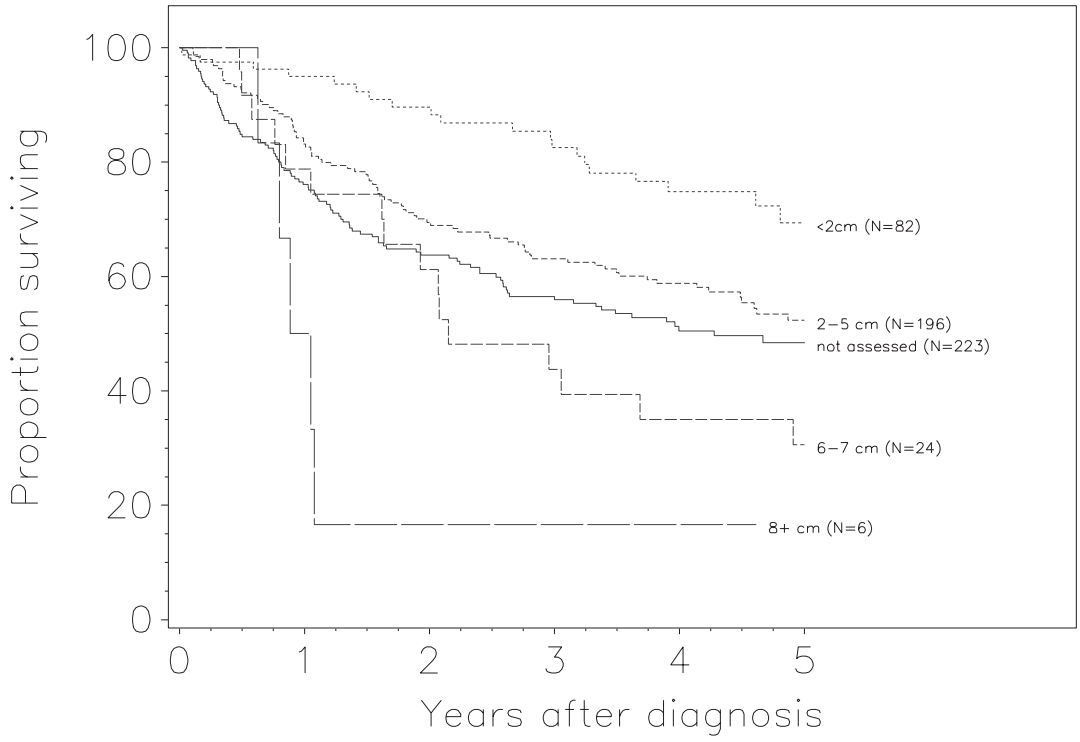
Fig. 4. Carcinoma of the vulva: patients treated in 1996–98. Survival by age at diagnosis (epidermoid invasive cancer only), $n = 531$.



Histotype	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Bartholin gland	25	66.5	87.2	77.8	72.4	64.8	64.8	1.4 (0.6–3.2)
Epidermoid	588	67.2	82.2	70.1	62.5	56.9	53.1	Reference
Adenocarcinoma	25	66.8	75.0	42.2	42.2	42.2	42.2	1.5 (0.8–3.0)
Other	72	65.5	84.2	73.3	64.8	62.9	54.9	0.8 (0.5–1.2)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

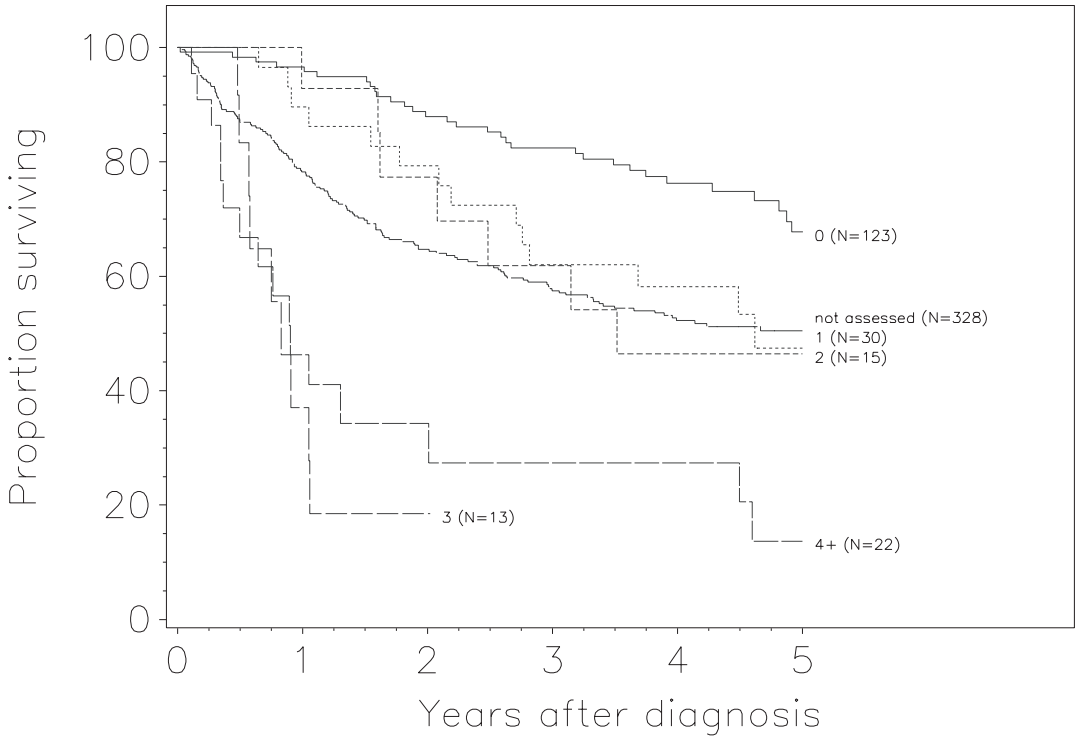
Fig. 5. Carcinoma of the vulva: patients treated in 1996–98. Survival by histologic type, $n = 710$.



Tumor size	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Not assessed	223	69.6	76.2	63.9	56.3	50.9	48.9	2.6 (1.5–4.4)
<2 cm	82	63.9	95.0	89.7	82.6	74.6	69.9	Reference
2–5 cm	196	67.9	83.3	69.6	63.2	58.8	52.7	1.8 (1.1–3.0)
6–7 cm	24	64.6	78.7	61.2	43.7	35.0	30.6	2.8 (1.4–5.7)
8+ cm	6	76.3	50.0	16.7	16.7	16.7	–	5.0 (1.8–13.9)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

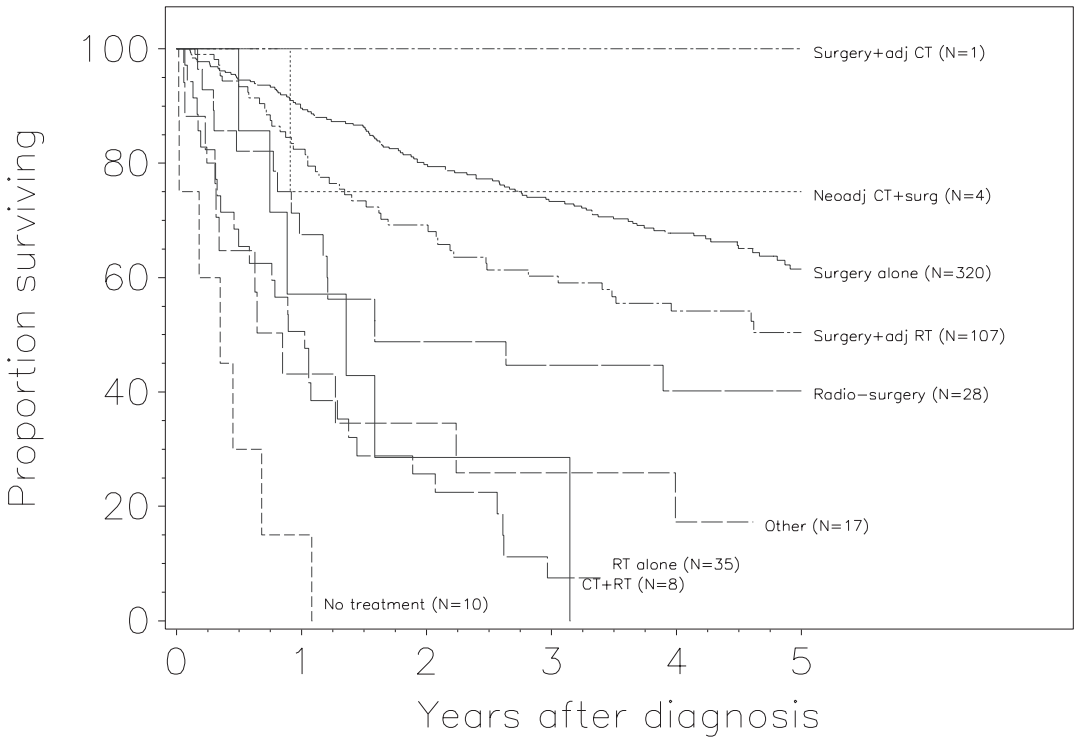
Fig. 6. Carcinoma of the vulva: patients treated in 1996–98. Survival by tumor size (epidermoid invasive cancer only), $n = 531$.



Lymph nodes	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
None	123	63.9	96.7	88.0	82.4	76.0	68.7	Reference
1	30	67.5	89.8	79.5	62.2	58.4	48.3	1.6 (0.8–3.0)
2	15	65.2	93.1	78.2	62.6	45.9	45.9	2.1 (0.9–4.9)
3	13	69.5	41.7	17.9	–	–	–	8.3 (3.8–18.4)
4+	22	64.4	47.6	35.7	28.6	28.6	14.3	7.2 (3.8–13.6)
Not assessed	328	69.8	78.3	64.9	57.7	52.3	50.5	1.7 (1.1–2.6)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

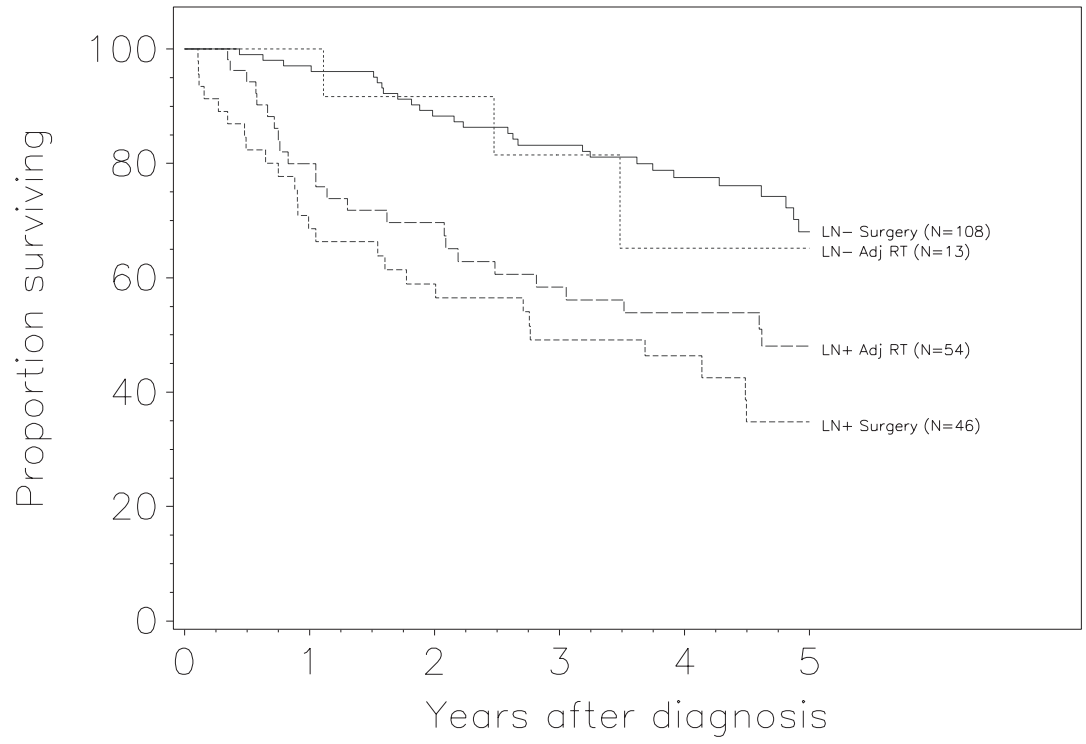
Fig. 7. Carcinoma of the vulva: patients treated in 1996–98. Survival by positive lymph nodes (epidermoid invasive cancer only), $n = 531$.



Treatment	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
No treatment	10	69.5	29.4	–	–	–	–	5.0 (1.9–12.7)
Surgery alone	320	67.3	89.7	79.9	73.5	67.7	61.9	Reference
RT alone	35	75.4	50.7	26.1	8.7	–	–	2.5 (1.5–4.3)
Radio–surgery	28	71.5	67.3	48.6	44.7	40.2	40.2	1.1 (0.6–2.1)
Neoadj CT + surg	4	58.8	75.0	75.0	75.0	75.0	75.0	1.1 (0.1–10.0)
Surgery + adj RT	107	67.5	82.7	69.2	60.2	54.0	50.7	0.9 (0.6–1.3)
Surgery + adj CT	1	20.0	100	100	100	100	100	–
CT + RT	8	63.3	60.0	30.0	30.0	–	–	1.6 (0.6–4.3)
Other	17	69.1	43.8	35.8	26.8	17.9	–	2.1 (1.0–4.3)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

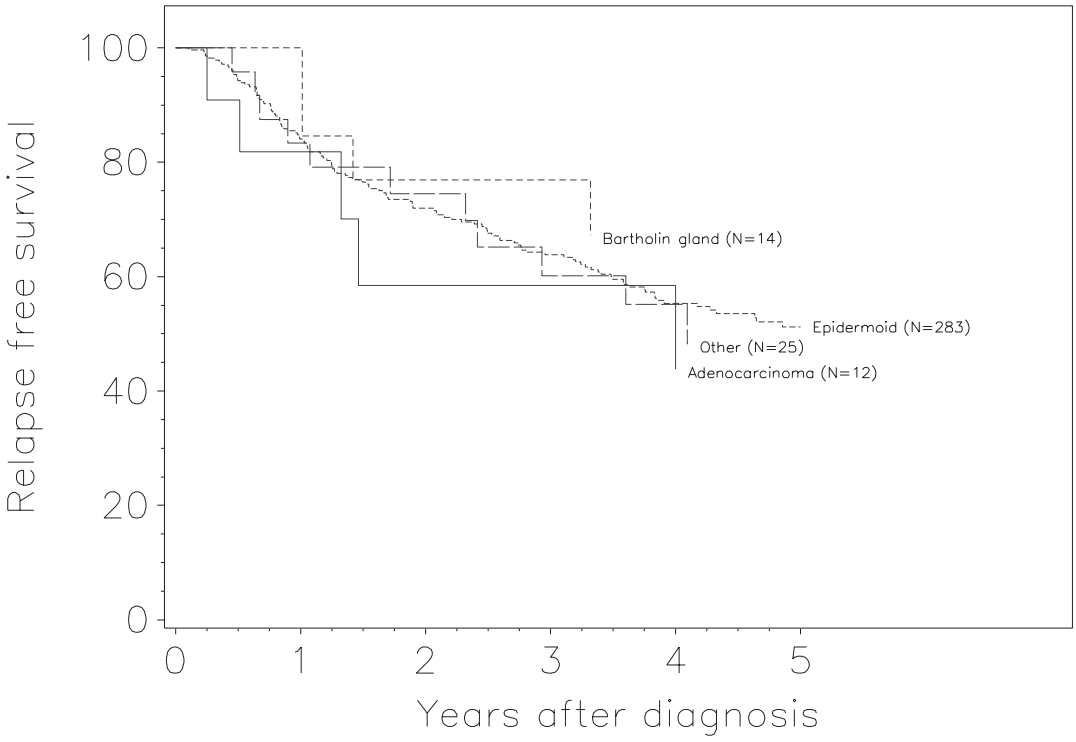
Fig. 8. Carcinoma of the vulva: patients treated in 1996–98. Survival by treatment (epidermoid invasive cancer only), $n = 530$.



Lymphnodal involvement	Patients (*n*)	Mean age (yr)	Overall survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
LN $^{-ve}$ Surgery alone	108	62.9	97.1	88.3	83.2	77.4	69.3	Reference
LN $^{-ve}$ Surgery + Adj RT	13	71.7	100.0	91.3	80.6	67.1	67.1	1.6 (0.5–5.2)
LN $^{+ve}$ Surgery alone	46	67.8	68.9	59.4	49.5	46.7	35.0	4.8 (2.3–10.3)
LN $^{+ve}$ Surgery + Adj RT	54	65.0	80.6	70.0	58.9	54.3	48.8	2.0 (0.9–4.4)

[a] Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

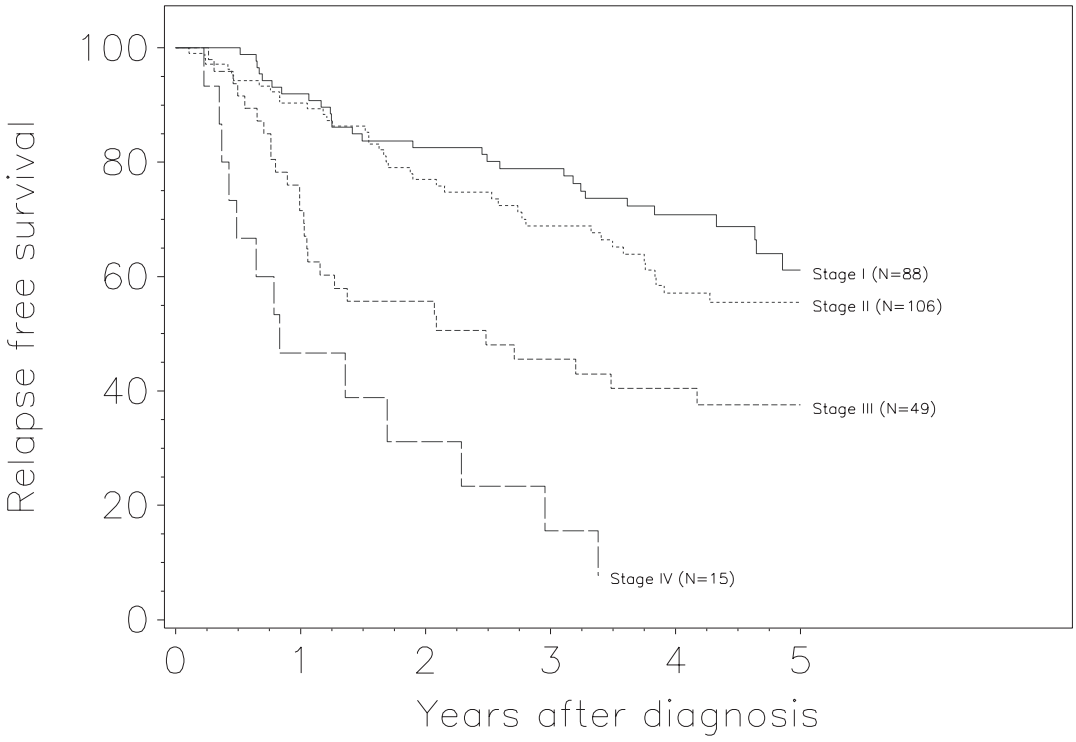
Fig. 9. Carcinoma of the vulva: patients treated in 1996–98. Survival by mode of treatment and lymphnodal involvement (epidermoid invasive cancer only), $n = 221$.



Histotype	Patients (*n*)	Mean age (yr)	Relapse-free survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
Bartholin gland	14	66.9	100	76.9	76.9	66.7	66.7	0.9 (0.3–2.3)
Epidermoid	283	64.4	84.2	72.1	63.9	55.2	51.4	Reference
Adenocarcinoma	12	62.7	82.6	62.0	62.0	62.0	41.3	2.4 (0.9–6.2)
Other	25	66.2	83.7	74.9	60.4	54.9	46.4	0.6 (0.3–1.2)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

Fig. 10. Carcinoma of the vulva: patients treated in 1996–98. Relapse-free survival by histologic type, $n = 334$.



Stage	Patients (*n*)	Mean age (yr)	Relapse-free survival (%) at					Hazards ratio[a] (95% CI)
			1 year	2 years	3 years	4 years	5 years	
I	88	61.1	92.0	82.6	78.9	70.3	62.0	Reference
II	106	67.5	90.3	76.9	68.9	57.4	55.7	1.3 (0.8–2.1)
III	49	68.9	72.3	56.0	46.0	40.8	37.9	2.7 (1.5–4.8)
IV	15	69.3	46.7	32.3	16.2	8.1	–	6.6 (3.1–14.0)

[a]Hazards ratio and 95% Confidence Intervals obtained from a Cox model adjusted for age, stage and country.

Fig. 11. Melanoma of the vulva: patients treated in 1996–98. Relapse-free survival by FIGO stage (epidermoid invasive cancer only), $n = 258$.

Table 15
Carcinoma of the vulva: patients treated in 1996–98. Multivariate analysis

Strata	Hazards ratios (95% CI)[a]			
	Stage I	Stage II	Stage III	Stage IV
Age				
Aged <65	Reference	Reference	Reference	Reference
Aged 65+	4.98 (2.18–11.3)	2.57 (1.50–4.39)	2.01 (1.03–3.93)	1.49 (0.69–3.21)
Lymphnodal status				
Negative	Reference	Reference	Reference	Reference
Positive	1.26 (0.24–6.79)	1.44 (0.73–2.83)	2.30 (0.76–6.94)	–
Unknown	0.67 (0.32–1.39)	1.08 (0.65–1.80)	3.87 (1.18–12.7)	–
Treatment				
Surgery alone	Reference	Reference	Reference	Reference
Radiotherapy alone	6.18 (0.69–55.3)	2.09 (0.76–5.74)	0.85 (0.42–1.71)	1.29 (0.33–5.13)
Surgery + adjuvant RT	2.03 (0.64–6.43)	1.60 (0.92–2.78)	0.30 (0.16–0.59)	0.58 (0.12–2.76)
Other treatment	–	2.50 (1.19–5.28)	0.70 (0.33–1.47)	1.48 (0.55–3.99)

[a] From Cox proportional hazard regression model, also adjusted for country.