The use of the GOG Score to Tailor Postop Management of Early Stage Cervical Cancer

New Trends of Treatment for Cervical Cancer

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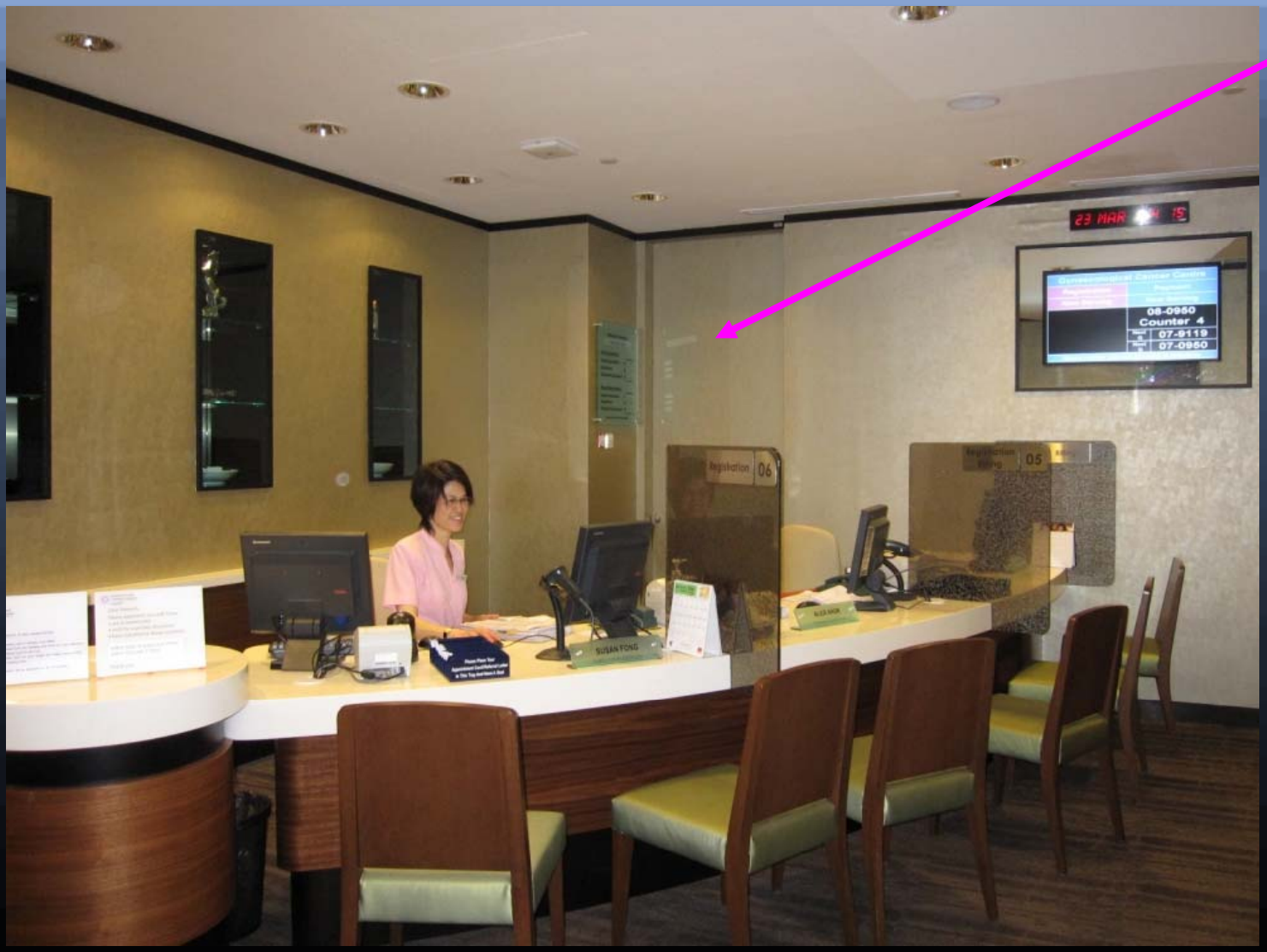
KK Gynaecology Cancer Centre

Entrance to KK GCC

Next to Colposcopy Suites

KK Gynaecology Cancer Centre

Registration and Billing Counter



Behind the sliding door is the link-way leading to Staff Service Corridor and Colposcopy Counter

KK Gynaecology Cancer Centre

Net-surfing and Reading Corner

A smaller corner as compared with Colposcopy Suites

KK Gynaecology Cancer Centre

Counselling Room

KK GCC Colposcopy Suites

Treatment Room

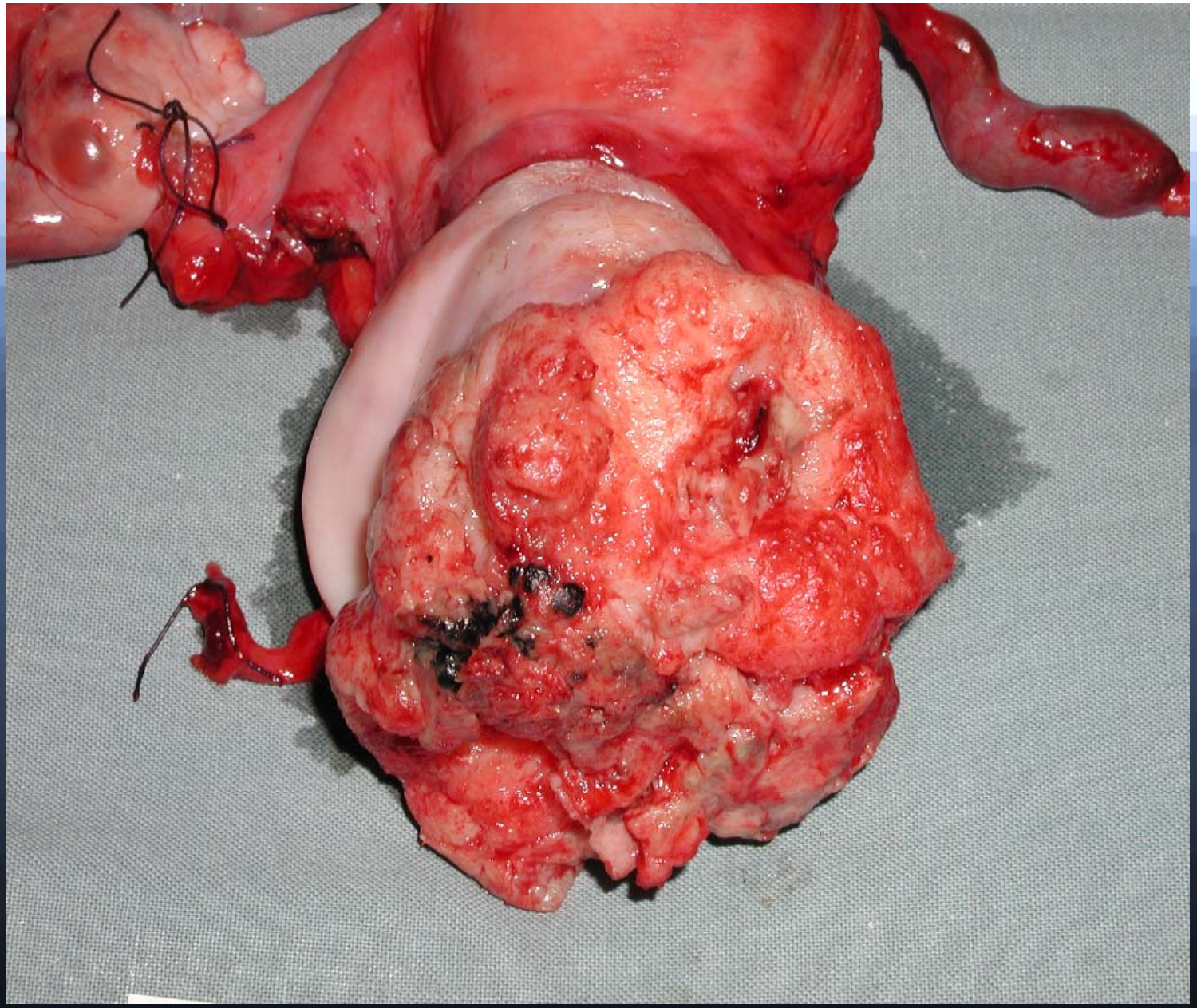
Recovery Area After LEEP

KK Gynaecology Cancer Centre

Waiting area outside GCC & Colposcopy Suites

CANCERS TREATED AT KK HOSPITAL 1996 - 2006

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Cervix Cancer	139	140	138	153	142	135	131	126	134	120	147
Uterine Cancer	62	78	79	81	112	115	126	131	150	170	177
Ovarian Cancer	93	78	90	73	98	85	102	133	108	126	109



Introduction

- Nodes negative radical hysterectomy patients have 85 to 90% 5 year survival rate. However, they contribute to approximately 50% of treatment failure.
- Most of the failure (about 70%) occurring in the pelvis.
- At present, no standardised adjuvant treatment for High Risk Nodes Negative Early Stage Cervical Cancers, FIGO stage I-IIa, post radical hysterectomy.
- It is known that patients with large tumour size, extensive LVSI or deeply penetrating tumour remain at significant risk of relapse despite surgery.

Introduction

- Adjuvant pelvic radiation has been shown to decrease the risk of pelvic recurrences significantly. ***Sedlis et al GOG 1999 (recurrence free rate 88% vs 79% at 2 years)***
- Different centres used different approaches to select high risk nodes negative patients for further adjuvant radiation.

The GOG Score

- Delgado et al in 1990 (GOG group) derived a prognostic risk scoring system “ GOG score” based on
  - Clinical Tumour Size
  - LVSI
  - Depth of Tumour Invasion
- Risk of recurrence estimated to be 40% at 3 years with GOG score > 120.

The Singapore KK Women's and Children's Hospital Experience

- Since, 1997, KKH Gynaecological Cancer Group have adopted the GOG score, to help tailor adjuvant radiotherapy for high risk nodes negative early stage cervical cancers post radical hysterectomy.

KK GOG treatment Protocol

GOG score	Adjuvant Radiation
< 40	No treatment
40-120	Small field pelvic radiation(45 Gy) and vault brachytherapy
>120	Standard field pelvic radiation (45Gy) and vault brachytherapy

Our 10 Year Survival Outcome

- Jan 1997 to Dec 2007, there were a total of 135 patients with FIGO stage I-IIa cervical cancers who underwent radical hysterectomy and found to be nodes negative.
- The GOG score was applied to this group to tailor adjuvant radiation.

Stage distribution

FIGO IBI	110	81%
FIGO IB2	11	8%
FIGO 2A	14	10%

Histological Subtypes

SCC	91	67%
Adenocarcinoma	30	22%
Adeno squamous	14	10%

RELATIVE RISK OF RECURRENCE
AFTER RADICAL HYSTERECTOMY FOR STAGE I CERVICAL CANCER

Variable		Relative risk
Depth of tumour penetration (mm)		
Superficial		
	3 [a]	1.0
	4	3.0
	5	7.2
	6	14
	7	21
	8	26
	9	21
Middle		
	5	20
	6	22
	7	23
	8	25
	9	28
	10	32
	11	36
Deep		
	7	28
	8	30
	10	34
	12	37
	14	41
	16	45
	18	49
	20	54
Clinical tumour size		
Occult tumour		1.0
Size (cm)	1	1.6
	2	1.9
	3	2.4
	4	2.9
	6	4.4
	8	6.6
Capillary / lymphatic space involvement		
	No	1.0
	Yes	1.7

(a) Arbitrary reference for depth invasion

"GOG Score" is calculated by multiplying the relative risk for the depth x tumour size x capillary space involvement

Eg. 8 mm superficial tumour, measuring 2 cm with VSI would be
26 x 1.9 x 1.7 = 84

Application of GOG score

GOG score <40	64	47%
GOG score 40 to 120	44	33%
GOG score >120	27	20%

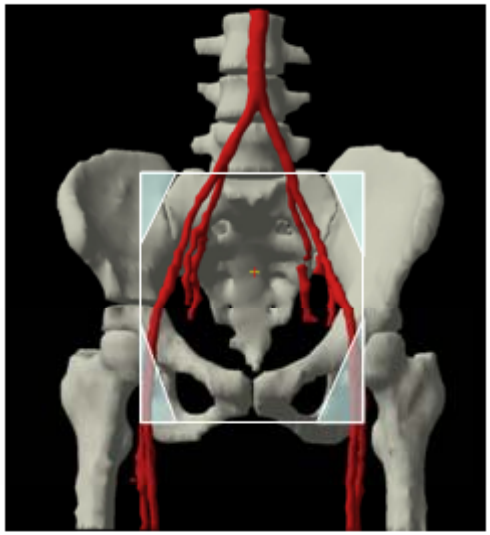
Adjuvant Radiation Based on GOG score

Small Field RT	41	30%
Standard Field RT	24	18%
Total	65	48%

Adjuvant radiation was given to a total of 65 patients (out of 135 patients) based on the GOG score.
6 patients refused adjuvant therapy and were excluded from further analysis.
Final no. for analysis = 129 patients.

7.1.2 POST-OPERATIVE CERVIX / UTERUS EBRT

Anterior-Posterior Portals



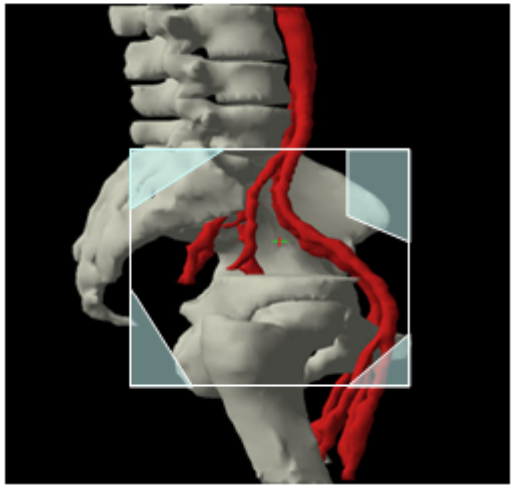
Field Margins

Superior : L5 – S1 junction

Inferior : Lower Obturator foramen

Lateral : 1 cm lateral to bony pelvic wall

Lateral Portals



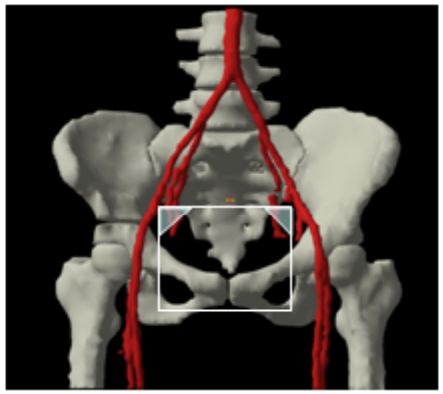
Field Margins

Anterior : Anterior Pubic symphsis

Posterior : S2 – S3 junction

7.1.3 POST-OPERATIVE MODIFIED (SMALL) FIELD EBRT

Anterior-Posterior Portals



Field Margins

Superior : Lower sacro-iliac joint

Inferior : Lower obturator foramen

Lateral : Edge of lateral bony pelvic wall

Data collected

- Epidemological data
- Survival data: Disease Free Survival
- Morbidity data : Fransco Italiano Glossary

Results: Survival

- At a median follow-up of 74 months (2 to143 months)

(approximately 6 years):

  - 125 out of 129 patients are alive and free of disease i.e. 97%.
  - DFI at 3 years 98.4%.
  - Pelvic recurrence noted in 2 patients (1.6%). Despite salvage chemotherapy, one passed away from disease progression. Another passed away in Indonesia, details of recurrence not available.
  - 2 other patients passed away from old age and intercurrent illness, not related to cancer.

Recurrences

Total deaths 4

Deaths due to recurrence 2 (confirmed)

Deaths not due to recurrence 2

Recurrence 1st case

48 yrs 1B1 SCC GOG score 81.6

Site of recurrence 7.6 cm mass pelvis . Multiple pre caval and para-aortic LN.

DFI 10months

2nd case – Recurrence death Indonesia (details not known)

59 Yrs stage1B1 scc GOG 130 Stnd fld Rt DFI 24months

Deaths Not Due To Recurrences

Case 1

65 yrs multiple medical problems SCC

GOG score 82

DFI 5 yrs

Case 2

50 yrs at diagnosis 1B1 adeno ca GOG 60

DFI 9 yrs , had multiple medical problems

Last seen 7/4/06 NED

Morbidity

- Morbidity is acceptable with mainly grade 1 and 2 toxicity.

RT toxicity assessed Clinical/ Telephone (27 patients only out of 65)

Limb edema	Grade 1	6/27	22%
Vaginal stenosis	Grade 1	3/27	11%
Small bowel	Grade 1	6/27	22%
Large bowel	Grade 1	1/27	4%
Bladder	Grade 1	5/27	18%
	Grade 2	1/27	4%

None had G3 or G4 toxicity

RT Toxicity –Limitations

Not all patients assessed Clinically

Telephone interview

Language barrier

Not willing to discuss

Assessment variation various people.

Incomplete study

Discussion

- The use of GOG score to tailor adjuvant radiation post radical hysterectomy is not new but not commonly employed.
- Other approaches:
  - Sedlis et al 1999 GOG 92 and Rotnam et al 2006 used 2 out of 3 high risk factors (LVSI, large tumour > 4cm, deep stromal invasion):
  - Survival difference did not reach statistical significance.

Discussion

- Kridelka et al reported a prospective preliminary result of using GOG score to tailor adjuvant radiation in 25 patients and showed a significant benefit in DFI among those treated with adjuvant Small Field Radiation for GOG score > 120.
- We, also adopted the GOG scoring system to guide adjuvant therapy.
- However, we are more aggressive, treating patients with GOG score > 40 onwards using both small field and standard field radiation.

Discussion

- We are able to demonstrate from our 10 year data (retrospective analysis of 129 patients) that this treatment approach is associated with excellent survival outcome with acceptable morbidity.

Conclusion

- We hence recommend the use of GOG score routinely to guide adjuvant therapy in this group of patients.

In the Future

- Currently we are reviewing our treatment guidelines and will be giving this group of patients options for lesser treatment.
- We will be collecting data again to evaluate if a lesser adjuvant approach gives equitable outcome.

1.1.4. FIGO (1995) Stage IB & IIA (up to 4 cm)

CT scan abdomen/MRI pelvis for all unless contraindicated.

1.	Suitable for surgery	Options : i. Radical Hysterectomy / Pelvic lymphadenectomy + Low Para-aortic lymphadenectomy ii. Radical Pelvic RT
2.	Unsuitable for surgery	Radical Pelvic RT

1.1.5. Post-Operative Adjuvant Therapy

1. Criteria
   - Lymph nodes, resection margins, parametrium not involved

Option:

	Option 1*	Option 2*
GOG < 40	No adjuvant treatment	**No adjuvant treatment**
GOG 40-120	Small Field RT + brachytherapy	**Observe**
GOG > 120	Standard field RT + brachytherapy	**Small Field RT + brachytherapy**

*KK GOG 10 years Data
*Kridelka et al Cancer 1999

2. i) Criteria

   - Parametrial involvement
   - Resection margins involved
   - > 1 Pelvic LN involved

   } Concurrent ChemoRT: Post-operative Cervix EBRT & vault RT with concurrent IV 5 FU 4g/m^2 over 96 hour, IV Cisplatin 70 mg/m^2 q3 weekly, 4 cycles

   * For patients with
   - adequate bone marrow, liver and renal function
   - ECOG 0, 1, 2

   ii) One positive Pelvic LN
   - Standard field RT + brachytherapy

   iii) Para-aortic LN positive + negative CT Chest
   - ChemoRT :Weekly cisplatin-Extended Field RT

Thank You!