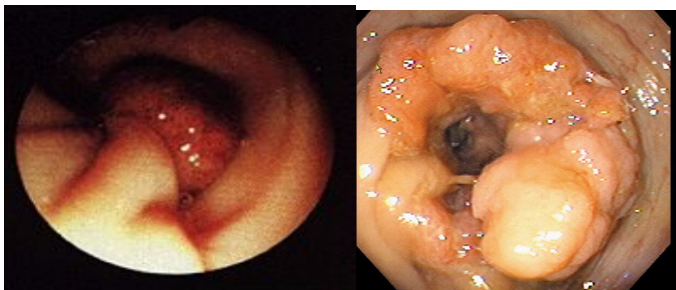
Early Detection of Colorectal Cancer

R Sim

TTS Hospital



National Healthcare Group
Adding years of healthy life

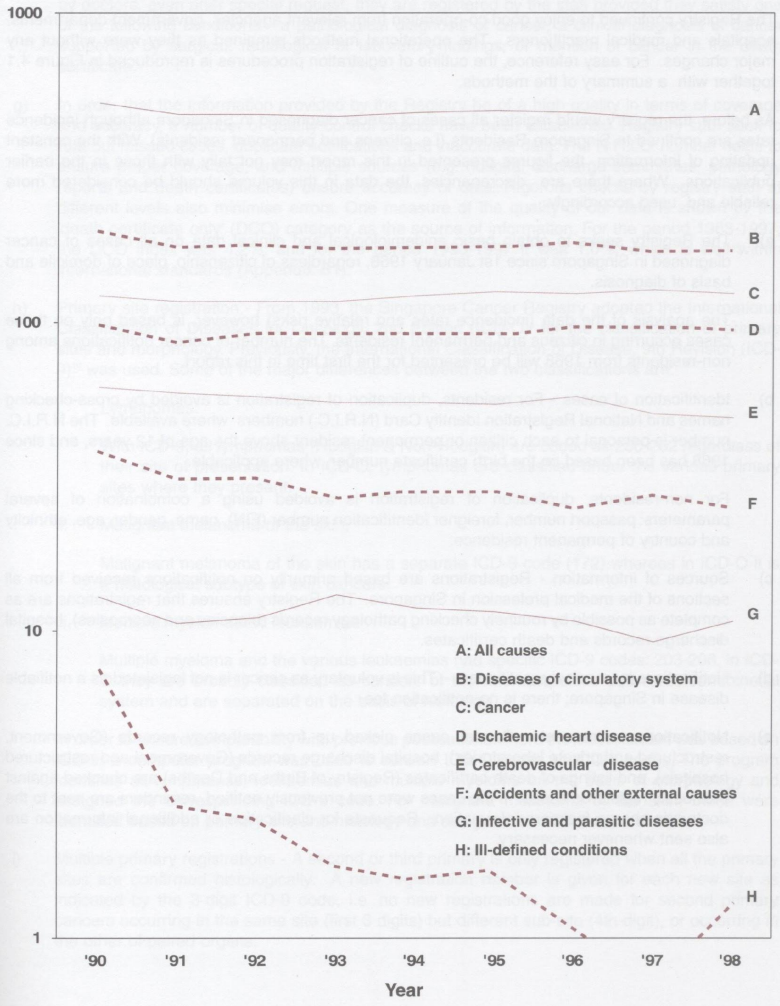


Figure 3.1 SINGAPORE RESIDENTS: CRUDE MORTALITY RATES FOR SELECTED CAUSES IN MALES & FEMALES, 1990-98.

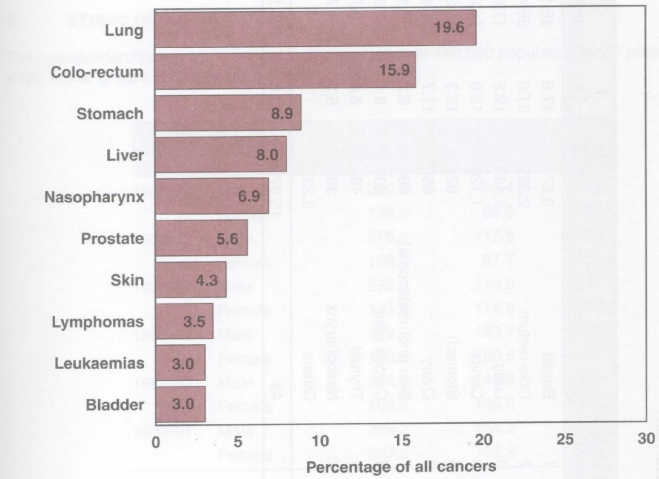


Figure 5.1(a) TEN MOST FREQUENT CANCERS IN MALES, 1993-97

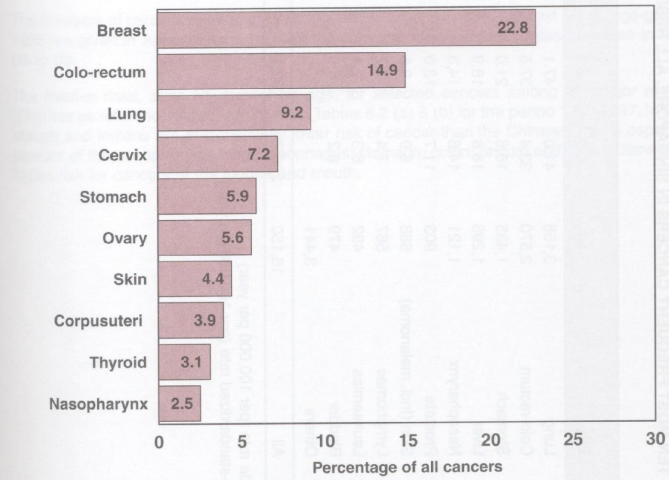


Figure 5.1(b) TEN MOST FREQUENT CANCERS IN FEMALES, 1993-97

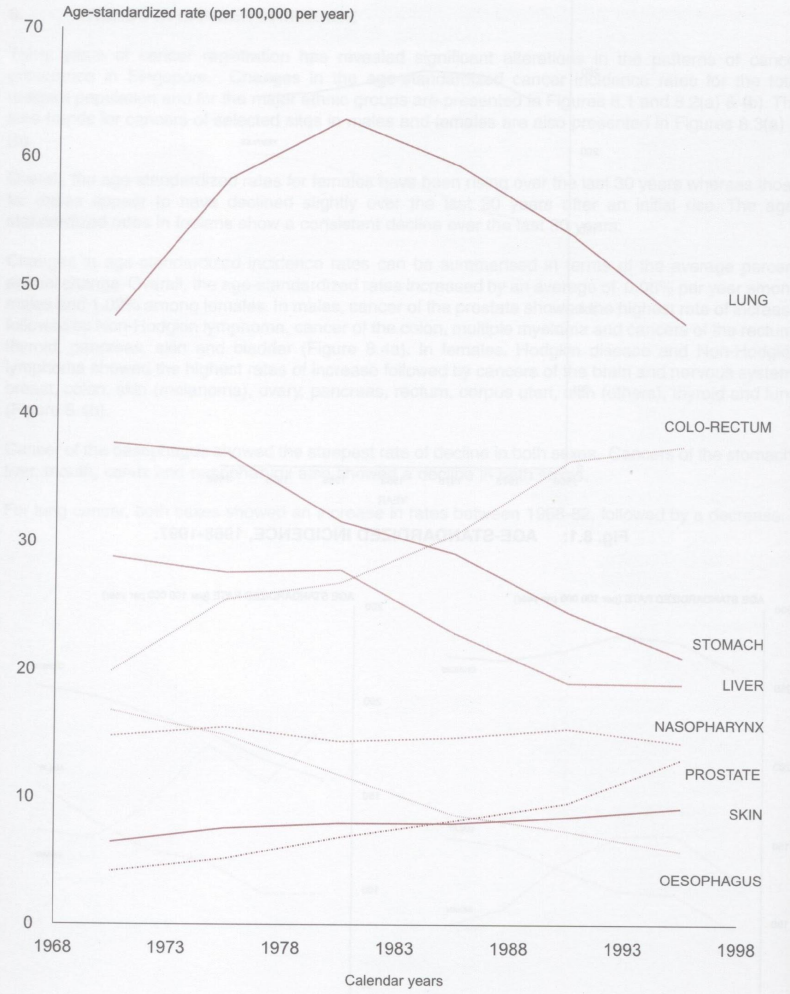


Fig. 8.3(a): TRENDS IN AGE-STANDARDIZED INCIDENCE OF SELECTED CANCER SITES IN MALES, 1968-1997.

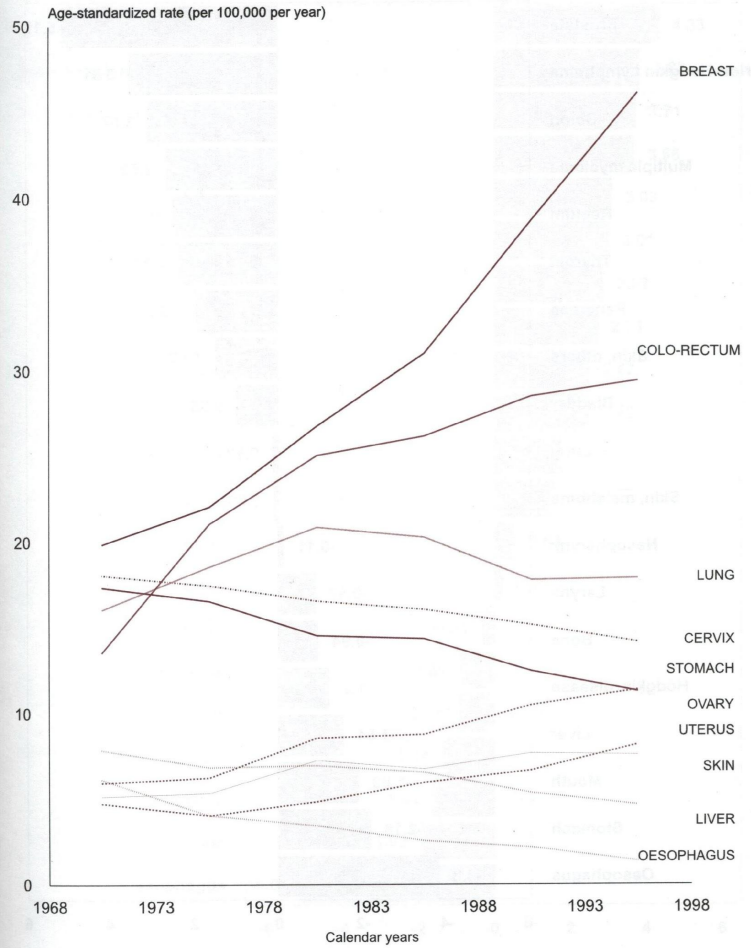


Fig. 8.3(b): TRENDS IN AGE-STANDARDIZED INCIDENCE OF SELECTED CANCER SITES IN FEMALES, 1968-1997.

Colon

INCIDENCE DATA (1993-1997)	Males			
	No.	%[a]	ASR[b]	RR (95% CI)[c]
All residents	1430	8.9	20.9	-
Chinese	1297	9.3	25.4	1.0
Malays	80	6.4	9.2	0.4 (0.3-0.5)
Indians	32	4.8	4.4	0.2 (0.1-0.3)

INCIDENCE DATA (1993-1997)	Females			
	No.	%[a]	ASR[b]	RR (95% CI)[c]
All residents	1427	9.1	17.9	-
Chinese	1300	9.6	19.5	1.0
Malays	74	5.6	9.2	0.5 (0.4-0.6)
Indians	34	6.0	9.4	0.5 (0.3-0.7)

[a] percentage of all cancers in this sex-ethnic group
[b] age-standardized (to 'World' population) rate per 100,000/year
[c] age-adjusted relative risk and 95% confidence interval for Malays and Indians (Chinese as reference group)

Rectum

INCIDENCE DATA (1993-1997)	Males			
	No.	%[a]	ASR[b]	RR (95% CI)[c]
All residents	1140	7.1	16.6	-
Chinese	1015	7.2	19.6	1.0
Malays	82	6.5	10.6	0.6 (0.4-0.7)
Indians	31	4.7	4.2	0.2 (0.2-0.3)

INCIDENCE DATA (1993-1997)	Females			
	No.	%[a]	ASR[b]	RR (95% CI)[c]
All residents	903	5.8	11.5	-
Chinese	820	6.0	12.6	1.0
Malays	57	4.3	7.3	0.6 (0.5-0.8)
Indians	22	3.9	5.7	0.5 (0.3-0.7)

[a] percentage of all cancers in this sex-ethnic group
[b] age-standardized (to 'World' population) rate per 100,000/year
[c] age-adjusted relative risk and 95% confidence interval for Malays and Indians (Chinese as reference group)

Risk factors

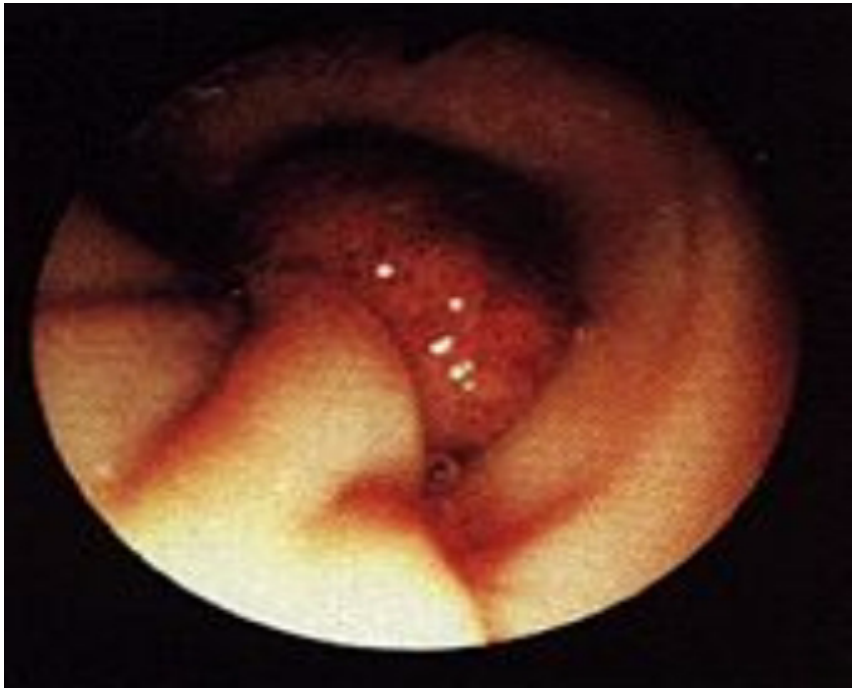
- Family history
- High animal fat and calorie, low fibre diet, lack of exercise
- Personal history of ovarian, breast or uterine cancer
- Personal history of colon cancer or polyp
- Ulcerative colitis
- Reproductive status
- Smoking
- Alcohol

Risk factor is not the same as cause

Polyps

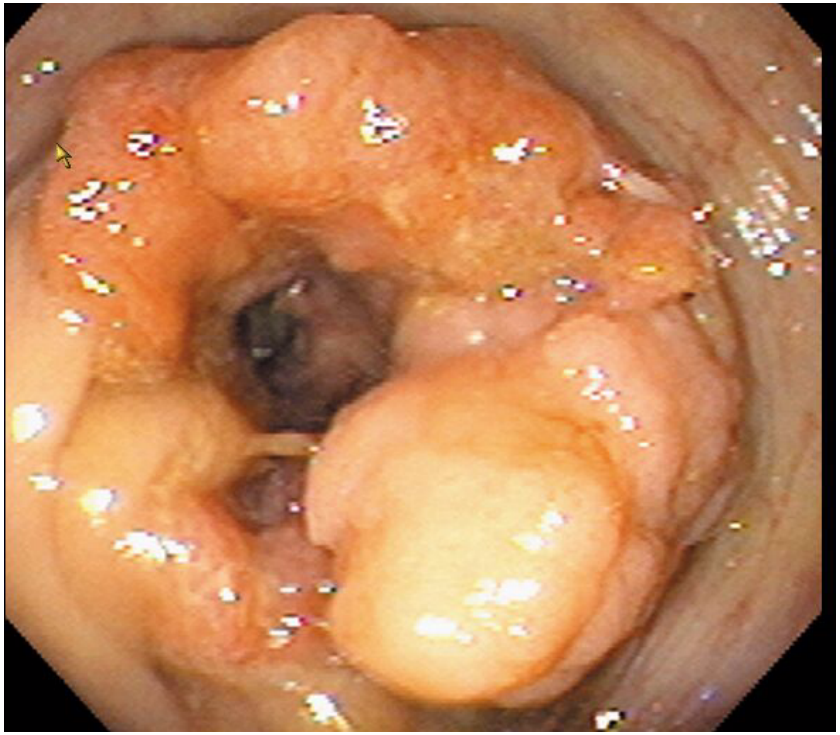
Symptoms

- Blood in stool
- Change in bowel habit – diarrhoea, constipation, narrow stool
- Straining during bowel movement
- Abdominal pain
- Weakness, fatigue, loss of weight and appetite



Polyp

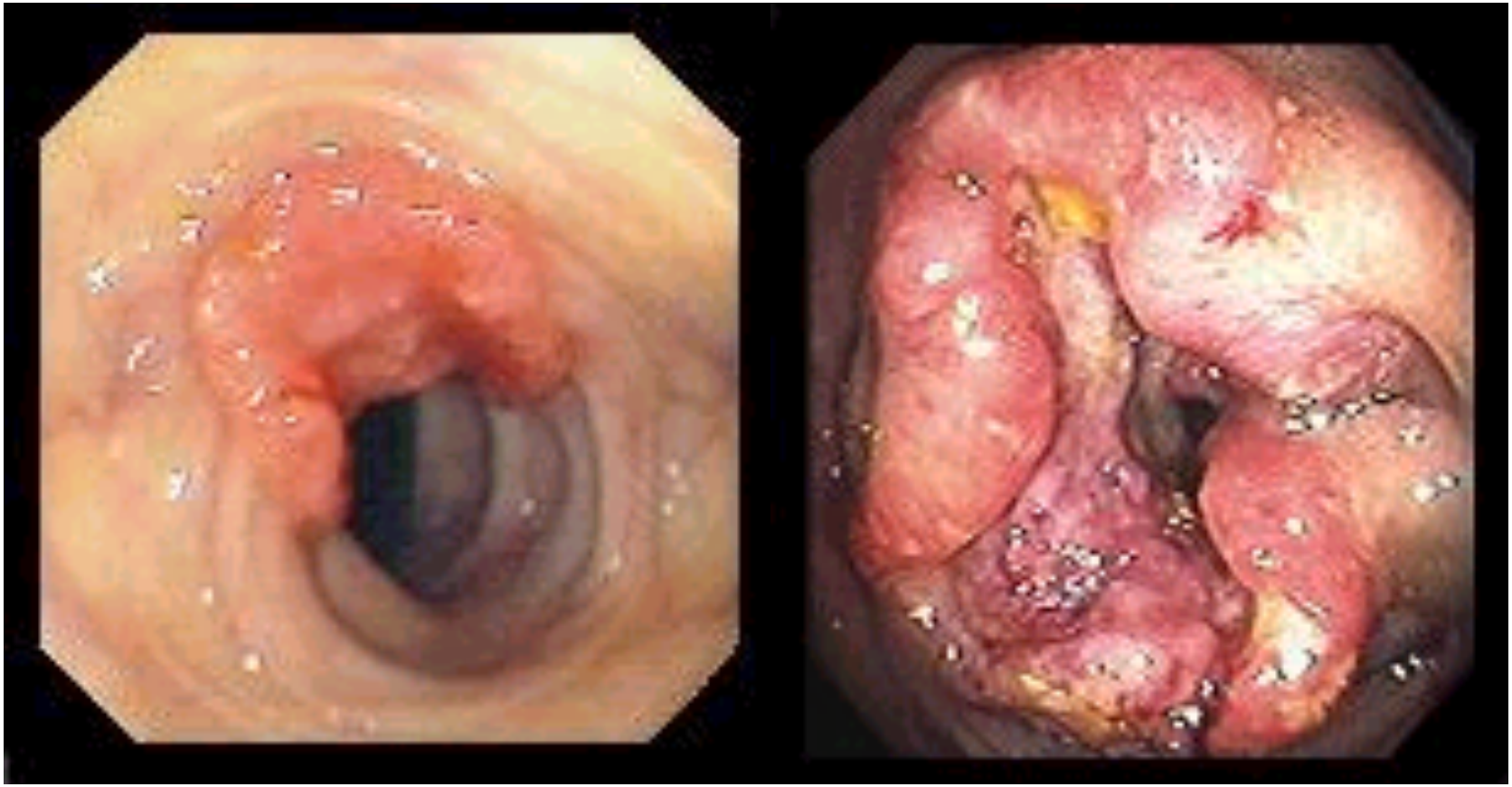
Cancer

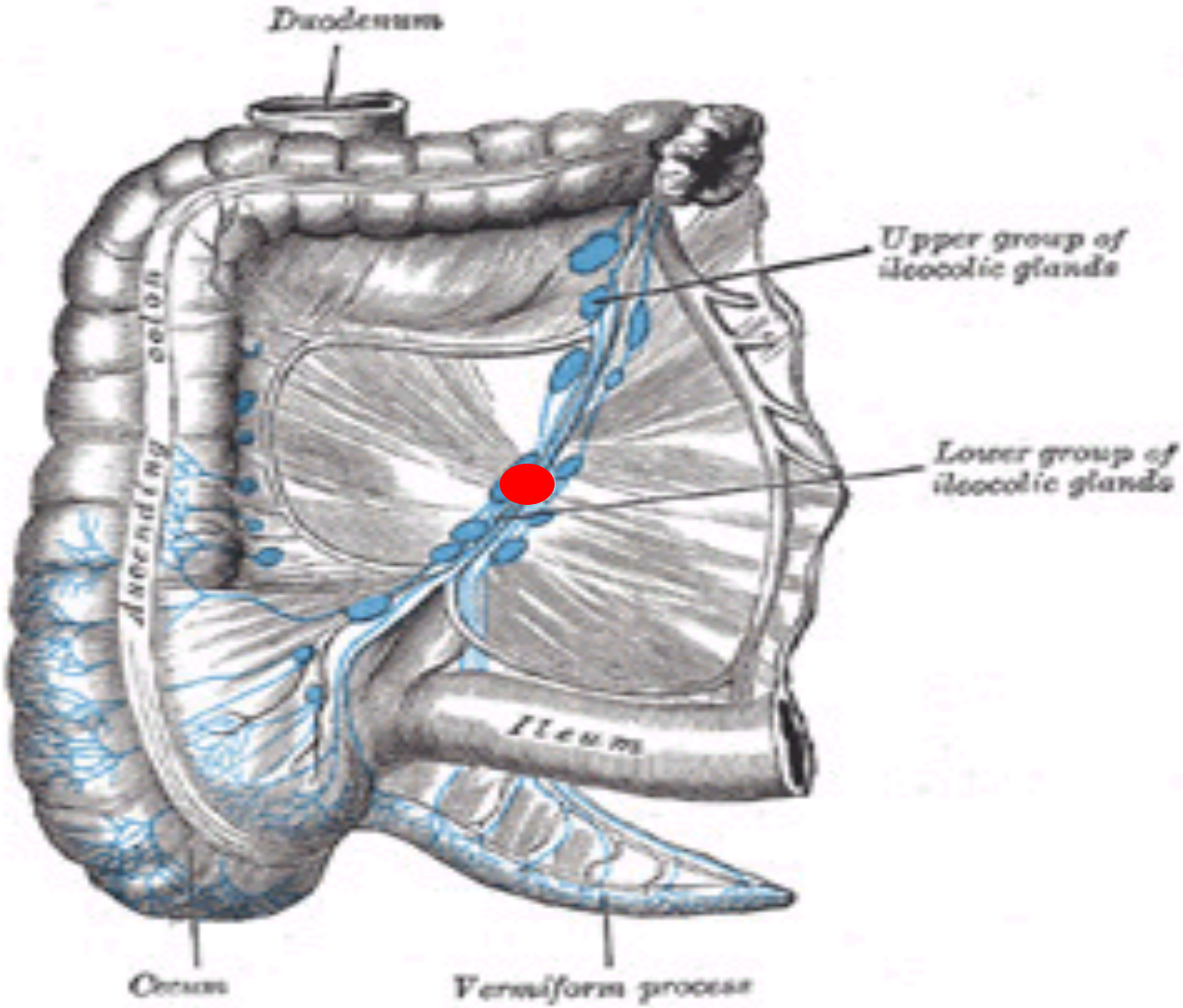


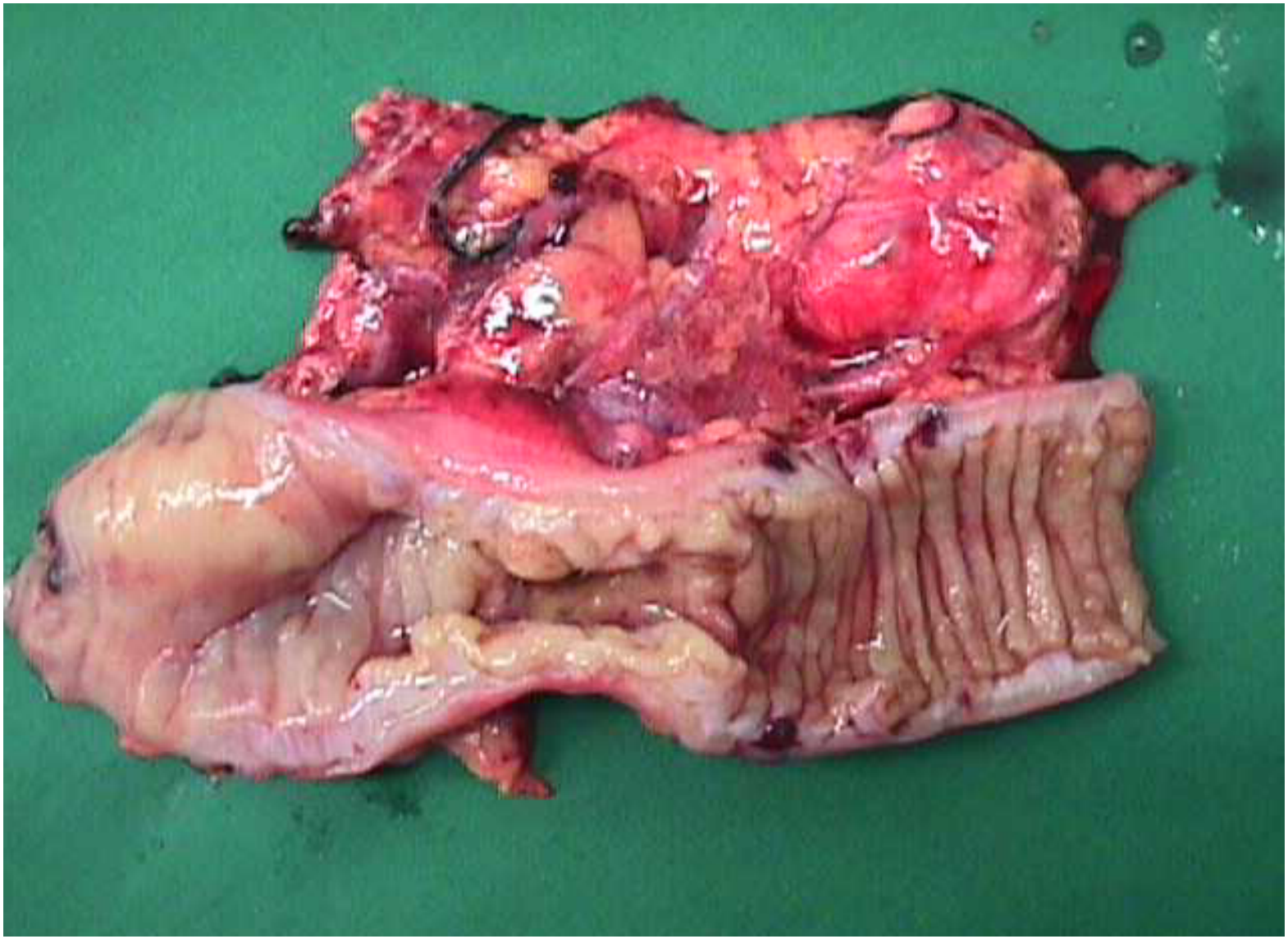
Staging

- Stage I – small, limited to the wall Surgery is curative
- Stage II – large, beyond the wall Surgery with chemotherapy in some cases
- Stage III – lymph node spread Surgery potentially curative but chemotherapy needed
- Stage IV – spread to liver, lungs Surgery is palliative but may still be curative in some, palliative chemotherapy

STAGE	% at Diagnosis	5-yr survival
A	15%	85-95%
B	25%	70-85%
C	35%	45-60%
D	25%	3-8%




Duodenum
Upper group of ileocolic glands
Lower group of ileocolic glands
Ascending colon
Ileum
Cecum
Vermiform process



RISK FACTOR	POINT VALUE
AGE As you get older, your chances of developing colorectal cancer (CRC) increase.	40–50? –1 51–60? –2 61+? –3
PERSONAL HISTORY Previous CRC or adenomas increase risk.	Previous colorectal cancer? –9 Multiple adenomas? –4 Chronic bowel disease? –2
FAMILY HISTORY Having first-degree relatives with CRC increases risk. Also, a small percentage of families have inherited genetic conditions known as familial adenomatous polyposis (FAP) and hereditary nonpolyposis colorectal cancer (HNPCC), which greatly increase risk of developing CRC.	FAP? –10 HNPCC? –8 One first-degree relative with colorectal cancer? –3 The relative was diagnosed under age 55? –2 Two affected first-degree relatives? –5
SCREENING Early detection may help prevent CRC.	Get colon screenings (as recommended by doctor)? +1 Should have a screening but haven't? –1
DIET A healthful diet may reduce risk, according to some research.	Eat food mostly from high-fat animal sources? –1 Eat a balanced, high-fiber diet with lots of fruits and vegetables? +1
LIFESTYLE Smoking increases risk of developing CRC, as well as risk of dying of it.	Overweight? –1 Smoke? –2 Exercise 3 hours or more a week? +1
TOTALS	

IF YOUR SCORE IS 1 OR MORE: Colon power! You're a pipe dream.
IF YOUR SCORE IS 0 TO –3: Your pipes are only average, so keep a lookout.
IF YOUR SCORE IS –4 OR LESS: Pipe alert! Talk to your doctor about colon-cancer screening.

Table 4–2. STRATIFICATION BY RISK OF COLORECTAL CANCER OF ASYMPTOMATIC PERSONS

Factor	Average (70–80 percentof all cases)	Moderate (15–20 percent of all cases)	High (5–10 percent of all cases)
Age	≥ 50 years	Any	Any
Personal medical history		Adenomatous polyps Colorectal cancer Ovarian or uterine cancer	Inflammatory bowel disease • Chronic ulcerative colitis • Crohn's disease
Family medical history		A first-degree relative < 60 years of age or two or more first-degree relatives of any age with a history of: • adenomatous polyps • colorectal cancer	Family history of: • Familial adenomatous polyposis • Hereditary nonpolyposis colorectal cancer

Table 4–1. COLORECTAL CANCER SCREENING RECOMMENDATIONS FOR ASYMPTOMATIC MEN AND WOMEN 50 YEARS OF AGE OR OLDER

Test	American Cancer Society	Consortium (Winawer 1997)	U.S. Preventive Services Task Force (1996)	National Comprehensive Cancer Network (2000)
Fecal occult blood test (FOBT)	Annually plus flexible sigmoidoscopy every 5 years	Annually	Annually	Annually plus flexible sigmoidoscopy every 5 years
	OR			
Sigmoidoscopy	Flexible sigmoidoscopy every 5 years plus FOBT annually	Flexible sigmoidoscopy every 5 years	Flexible or rigid sigmoidoscopy recommended but insufficient evidence to recommend periodicity	Flexible sigmoidoscopy every 5 years plus FOBT annually
	OR			
Combination of FOBT and sigmoidoscopy	FOBT annually plus flexible sigmoidoscopy every 5 years	FOBT annually plus flexible sigmoidoscopy every 5 years	Both "effective" but "insufficient evidence to determine which of these methods is preferable or whether the combination . . . produces greater benefits than either test alone"	FOBT annually plus flexible sigmoidoscopy every 5 years
	OR			
Double-contrast barium enema with x-ray studies	Every 5–10 years	Every 5–10 years	"Insufficient evidence" to recommend for or against routine screening	Every 5 years
	OR			
Colonoscopy	Every 10 years	Every 10 years	"Insufficient evidence" to recommend for or against routine screening	Every 10 years

Data from the American Cancer Society,[2] Winawer et al.,[11] U.S. Preventive Services Task Force,[10] and the National Comprehensive Cancer Network.[12]

Table 4–3. RECOMMENDED SCREENING AND SURVEILLANCE FOR THOSE AT MODERATE AND HIGH RISK FOR COLORECTAL CANCER

Risk Stratification	Initial Screening	Subsequent Screening or Surveillance Interval
MODERATE RISK		
Personal History		
Adenomatous polyps		
Single, small (< 1 cm) polyps	Colonoscopy at time of polyp diagnosis	Repeat TCE[a] within 3 years of diagnosis. If findings are negative, follow average risk recommendations.
Large (> 1 cm) polyps or multiple polyps of any size	Colonoscopy at time of polyp diagnosis	Repeat TCE within 3 years of initial polyp removal. If findings are negative, repeat TCE every 5 years.
Colorectal cancer	TCE within 1 year of resection and perioperative TCE	If normal, TCE in 3 years. If at 3 years normal, TCE every 5 years.
Personal history of colorectal cancer and resection of curative intent		
Ovarian or uterine cancer	TCE within 1 year of diagnosis	TCE every 5 years
Family History		
Adenomatous polyps or colorectal cancer First-degree relative < 60 years of age or two first-degree relatives with a history of these	TCE at 40 years of age or 10 years earlier than age at diagnosis of earliest case diagnosed in family	TCE every 5 years
HIGH RISK		
Personal History		
Inflammatory bowel disease	Colonoscopy with biopsy of dysplasia In pancolitis: 8 years after initial diagnosis In colitis on left side: 12–15 years after initial diagnosis	Repeat every 1–2 years
Family History		
Familial adenomatous polyposis	At puberty, endoscopic surveillance, genetic testing counseling, and specialist referral	Consider colectomy if polyposis confirmed or genetic testing positive. Perform endoscopy every 1–2 years.
Hereditary nonpolyposis colon cancer	At 21 years of age, colonoscopy and counseling regarding genetic testing	Colonoscopy every 2 years until age 40 and then annually for patients whose genetic test is positive or for patients who do not undergo genetic testing

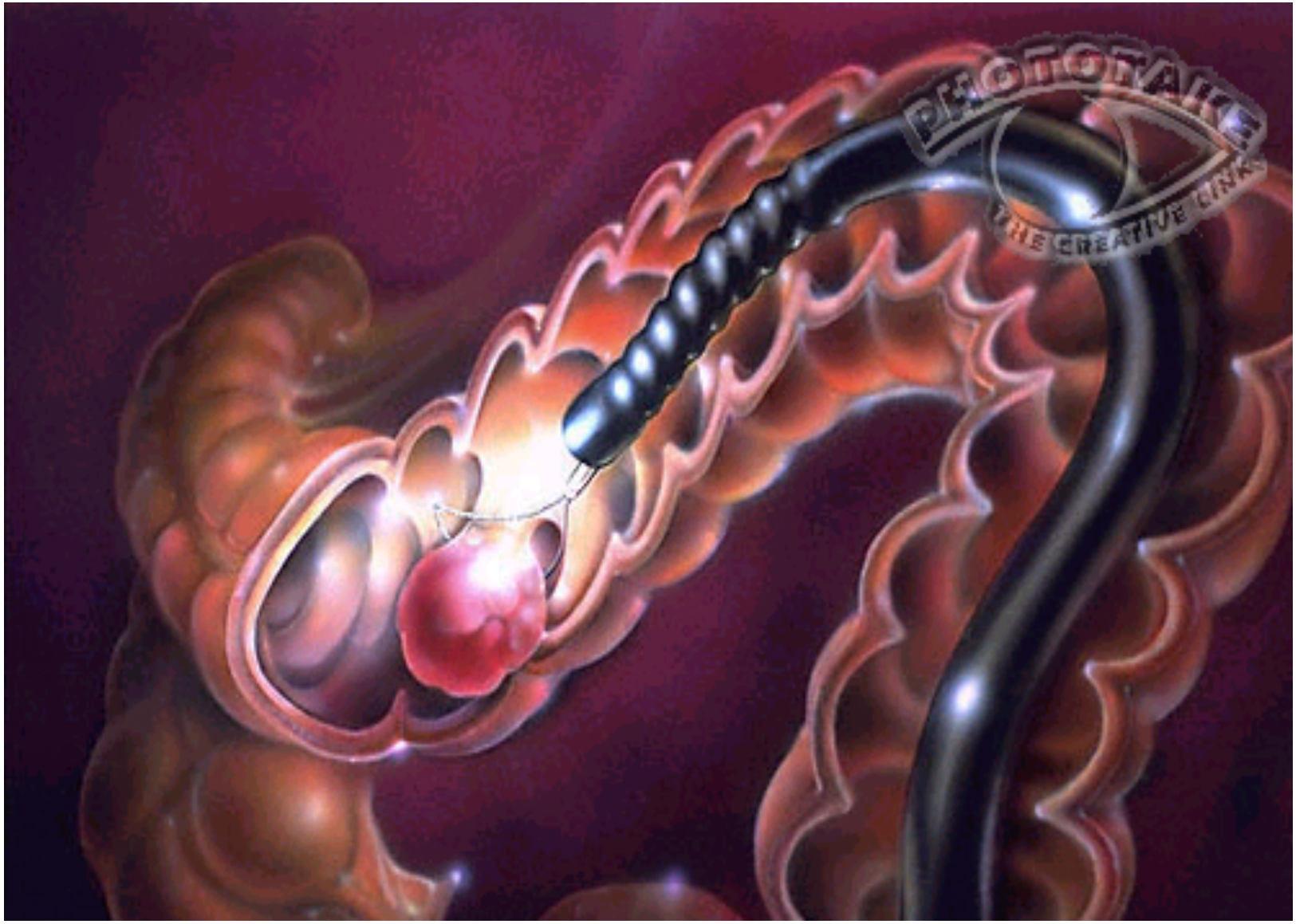
Screening

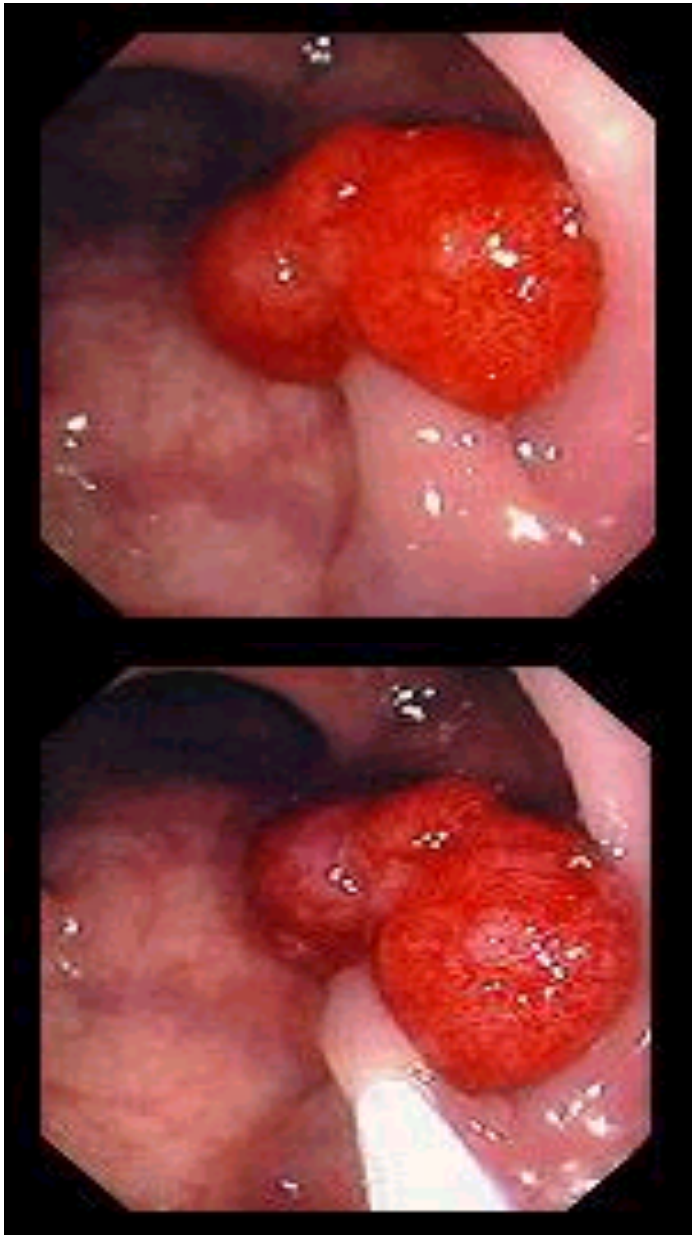
Beginning age 50

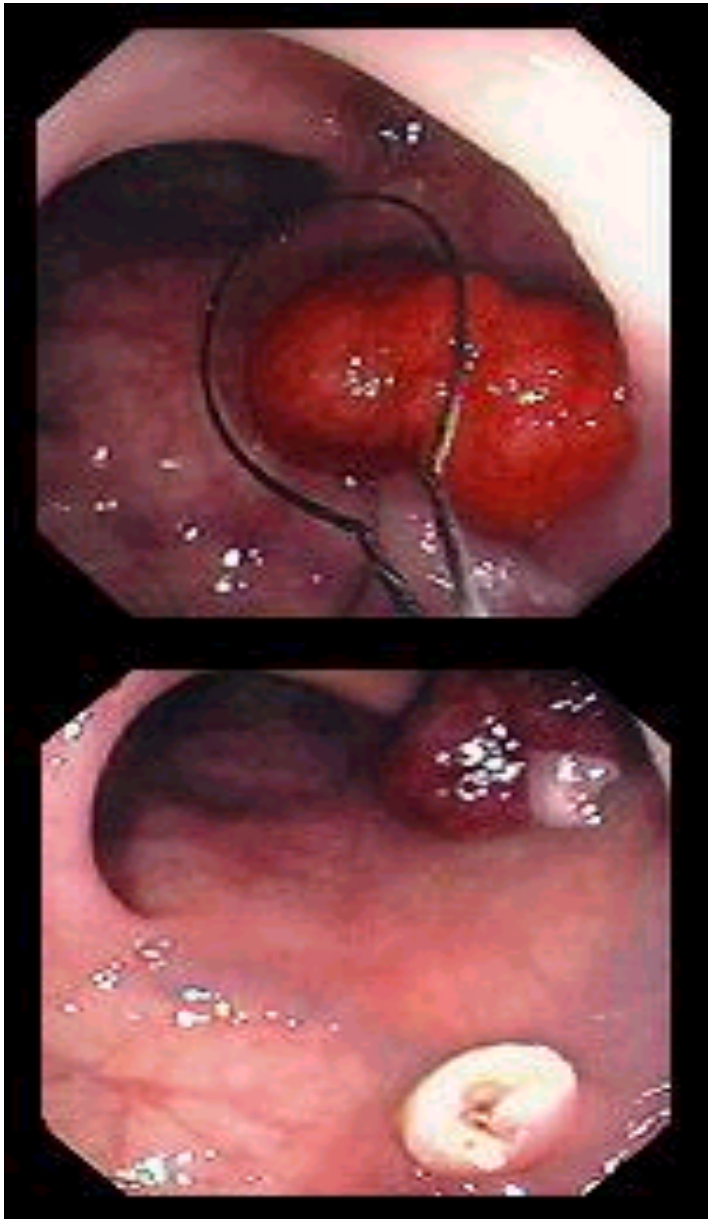
- Digital rectal examination, faecal occult blood yearly plus sigmoidoscopy every 5 years
- Barium enema every 5-10 years
- Colonoscopy every 10 years
- Stool genetic tests

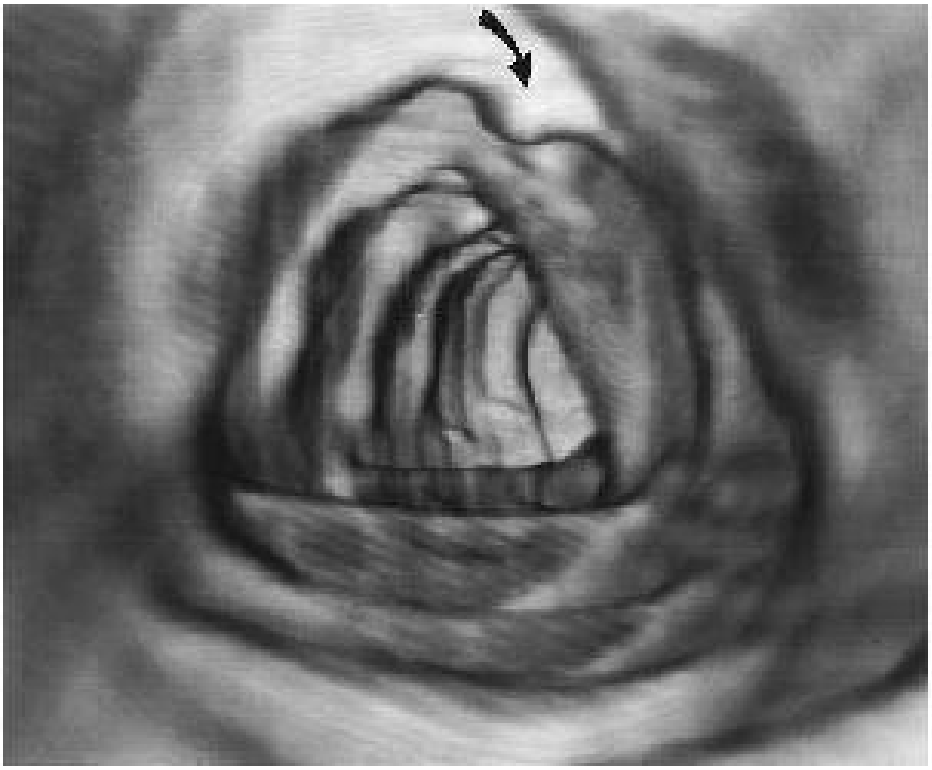
Some form of screening is better than none

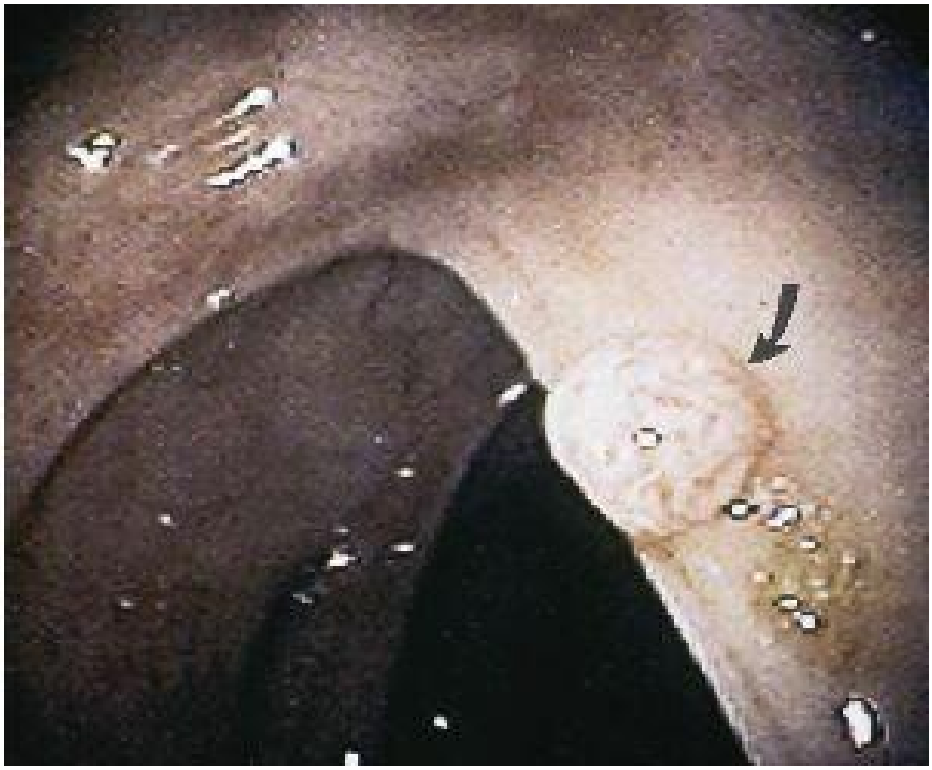

P PEDV
FRAME= 0
MG= 0
DR L GOH
STIC IMAGING

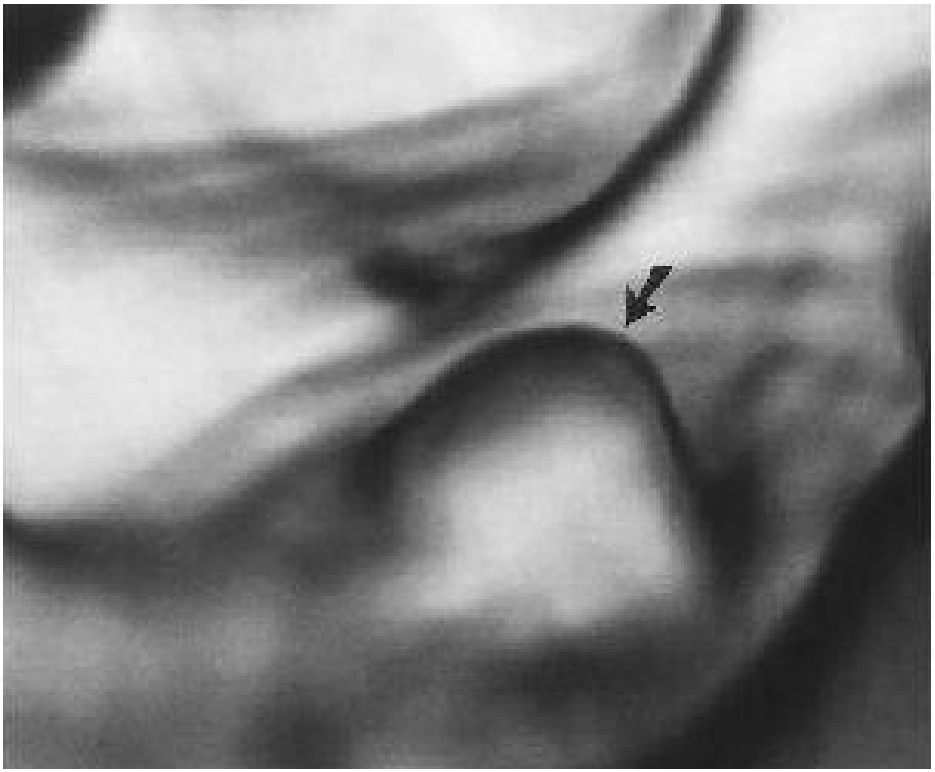

PROTOTYPE
THE CREATIVE LINK

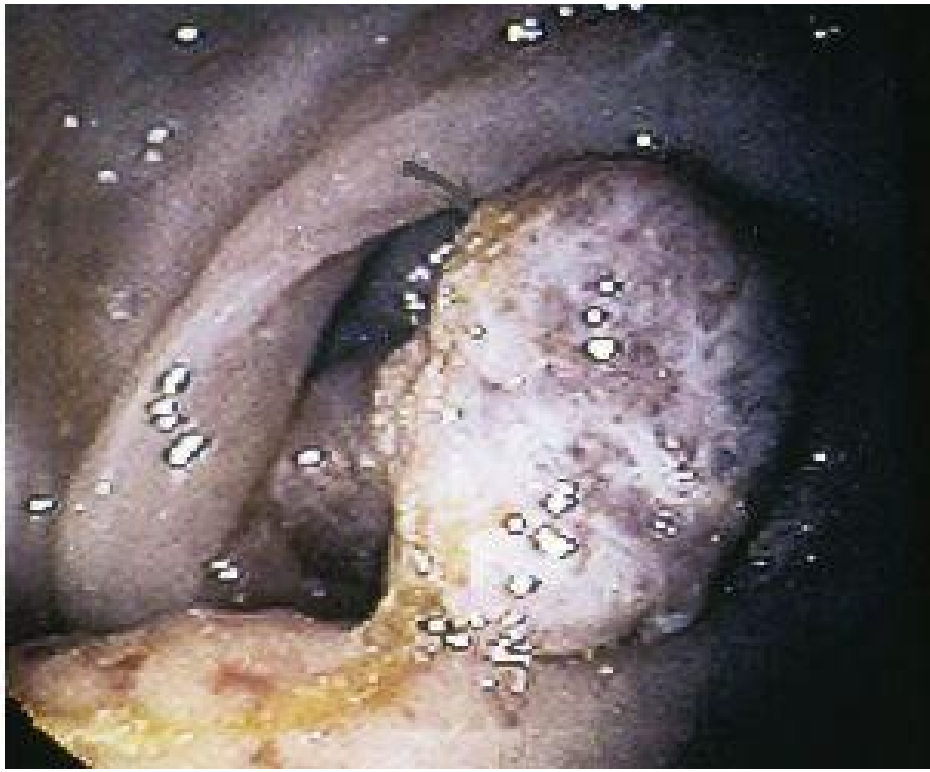












DNA stool analysis

Identify altered exfoliated DNA from colorectal polyps and cancer

Recent study has demonstrated high sensitivity (91%) in identifying colorectal cancer and adenomas greater than 1cm

APC mutations were seen in 57% sporadic cancer and polyp specimens

Trials

- Animal studies
- Phase I – safety and dosage
- Phase II – efficacy
- Phase III – compare against standard treatment

Summary

- Screening and early detection are the main strategies to diagnose colorectal cancer at an early stage so that treatment can produce the best possible outcome, including prevention and cure