



# Multiple Primary Tumors: Single Center Experience

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# Introduction

- Survival of cancer patients has improved with developments in oncological diagnosis and treatment modalities.
- Likelihood of secondary malignancies has increased as a result of longer follow-up periods and survivals.
- In this study, we aimed to share the experience of our clinic in multiple primary tumors.

# Materials-Methods

- Clinicopathological features of patients with multiple primary tumors who were followed in Medical Oncology Division of Marmara University between 1997 and 2019, were retrospectively collected.
- Multiple primary tumors were defined as:
  - Synchronous (diagnosed within 6 months)
  - Metachronous (diagnosed longer than 6 months apart)

# Results

- 21965 charts were reviewed & 152 patients with multiple primary tumors were collected
- 97 (63.8%) were male
- Median ages at diagnosis:
  - First tumor was 60 years (range:12-85)
  - Second tumor was 62 years (range:28-87).
- According to gender
  - First tumor was 58 years in females
  - It was 64 years in males.

# Results: TABLE 1: Baseline Patient Characteristics

Descriptives, n(%)	n(%)=152(100)	Descriptives, n(%)	n(%)=152(100)
<b>Gender</b>		<b>Number of tumors</b>	
Male	97(63.8)	Two	138 (90.8)
Female	55(36.2)	Three	13 (8.6)
<b>Tobacco</b>		Four	1 (0.7)
Never smoker	60(39.5)	<b>Synchronous tumors</b>	58 (38.2)
Current/past smoker	92(60.5)	<b>Metachronous tumors</b>	94 (61.8)
<b>Alcohol intake</b>		<b>Body Mass Index (BMI)</b>	
Yes	24(15.8)	Underweight (<18.5)	5(3.2)
No	128(84.2)	Normal (18.5-24.9)	33(21.3)
<b>History of cancer in a first-degree relative</b>		Overweight (25-29.9)	41(26.5)
Yes	62(40.8)	Obese (≥30)	25(16.1)
No	69(45.4)	Unknown	48(32.9)
Unknown	21(13.8)		

- Highest frequency of multiple primary tumors was in Black Sea Region (48 patients, 31.6%)

## Table 2: Most common cancer types and pairs according to gender

Gender, n	Most Frequent Cancer Primary	n(%)	Cancer Pairs	n(%)
<b>Female, 55</b>	Breast cancer	18(32.7%)	Breast-Gynecologic	10(18.1%)
	Endometrial carcinoma	7(12.7%)	Breast-Colorectal	8(14.5%)
	Colon cancer	6(10.9%)	Gynecologic-Gynecologic	4(7.2%)
<b>Male, 97</b>	Lung cancer	17(17.5%)	Lung-Urologic	10(10.0%)
	Head and neck cancer	14(14.4%)	Lung-Head and Neck	8(8.2%)
	Bladder cancer	13(13.4%)	Urologic-Urologic	8(8.2%)
			Lung-Colorectal	6(6.1%)

### Table 3-4: Numerical Distribution of Tumors According to Gender

Female	Gynecologic	GIS	Urologic	pancreotobiliary	Breast	Lung	other
<b>Breast</b>	5*	4*	3	3	1	1	1(skin)
<b>Gynecologic</b>	4*	1	-	1	2	-	2(SSS,Head&Neck)
<b>GIS</b>	1	4*	1	-	4*	3	-

- Median time between diagnosis of first and second primary tumors in female patients  
 Breast-Gynecologic was 25 months  
 Breast-Colorectal was 25.3 months  
 Gynecologic-Gynecologic was 25 months

Male	GIS	pancreotobiliary	Lung	Urologic	other
Lung	6*	2	3	1	1(lymphoma)
Head&Neck	3	-	6*	4	1(thyroid)
Urologic	2	4	9*	8*	2(skin)

- Median time between diagnosis of first and second primary tumors in male patients  
Lung-GIS was 11 months  
Urologic-Lung was 13 months  
Urologic-Urologic was 13 months



One male patient had four primary tumors

Tumors	Diagnostic age(years)
1.Skin (bcc)	62
2.larynx	63
3.prostat	75
4.bladder	78

# Survival Analysis

- Median duration of follow-up was 47 months (range:18.8-93.5).
- In the final analysis, 62 patients (58.7%) had died.
- Median OS of all patients was 140 months (95% CI, 96.5-183.5).
- Median OS of patients with
  - metachronous tumors were 159 months (95% CI, 121.24-196.75)
  - synchronous tumors were 43 months (95% CI, 8.38-77.16)
  - (p=0.005).

# Discussion-1

- Median OS of patients with synchronous tumors were shorter.
  - This might be related to multiple genetic abnormalities which causes more aggressive disease course
  - These patients can not get full treatment of each cancer type
- However patients with metachronous tumors live long enough to get tumors secondary to their previous treatments.

## Discussion-2

- Ovary, breast and endometrium carcinomas are known as hormone-dependent cancers.
- This common etiologic factor might explain the association between breast-gynecological tumors which were most commonly seen in females in our study.

## Discussion-3

- Nutritional factors like fat intake and obesity have associations between colon, breast and endometrial cancers.
- This nutritional justification might explain the association breast-colorectal tumors which were seen in females in our study.

## Discussion-4

- “Field carcinomatosis” is the carcinogenic effect of tobacco related primary tumors, and also induces the growth of secondary tumors located in aerodigestive tract and bladder
- Consistent with this, most frequent cancer pairs seen in males are related to smoking history.

# Conclusions

- Multiple primary tumors are encountered increasingly in clinical practice.
- Physicians should be aware of probabilities developing secondary tumors.
- Cancer patients should be encouraged to continue lifelong follow-up and should be informed about prevention (cessation of smoking and alcohol use, protection from UV light etc.), screening tests (mammography, cervical smear, fecal occult blood test etc.) and should be encouraged to modify their lifestyle.

