

## 第 31 回日本獣医がん学会使用スライド

ここには、1/26 のランチョンセミナーで使用した下記の表があります。

犬乳腺腫瘍 (WHO 分類の比較)

犬乳腺腫瘍(TDA 分類の比較)

WHO 第 2 版と Goldschmidt文献の犬乳腺腫瘍分類の比較

Goldschmidt文献と TDA 第 5 版の犬乳腺腫瘍分類の比較

TDA 第 5 版と SP の犬乳腺腫瘍分類の比較

犬乳腺悪性腫瘍の生物学的挙動

猫乳腺悪性腫瘍の生物学的挙動

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株式会社エム・エル・ティー

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犬乳腺腫瘍（WHO分類の比較）

Classification of Mammary Gland tumor of DOG		
WHO 1st 1974	WHO 2nd 1999	Surgical Pathology 2019
<b>Malignant Tumor</b> I. CARCINOMA I.A. ADENOCARCINOMA I.A.1. Tubular I.A.1.(a) simple type <sup>a</sup> I.A.1.(b) complex type <sup>b</sup> I.A.2. Papillary I.A.2.(a) simple type I.A.2.(b) complex type I.A.3. Papillary cystic I.A.3.(a) simple type I.A.3.(b) complex type I.B. SOLID CARCINOMA I.B.(a) simple type I.B.(b) complex type I.C. SPINDLE CELL CARCINOMA I.C.(a) simple type I.C.(b) complex type I.D. ANAPLASTIC CARCINOMA I.E. SQUAMOUS CELL CARCINOMA I.F. MUCINOUS CARCINOMA II. SARCOMA II.A. OSTEOSARCOMA II.B. FIBROSARCOMA II.C. OSTEOCHONDROSARCOMA (FIBRO-LIPO-OSTEOCHONDROSARCOMA) [COMBINED SARCOMA] II.D. OTHER SARCOMAS III. CARCINOSARCOMA(MALIGNANT MIXED TUMOUR) <b>Benign Tumor</b> IV. BENIGN OR APPARENTLY BENIGN TUMOURS IV.A. ADENOMA IV.B. PAPILLOMA IV.B.1. Duct papilloma IV.B.2. Duct papillomatosis IV.C. FIBROADENOMA IV.C.1. Pericanalicular IV.C.2. Intracanalicular IV.C.2.(a) noncellular type IV.C.2.(b) cellular type IV.C.3. Benign mixed tumour IV.C.4. Total fibroadenomatous change IV.D. BENIGN SOFT-TISSUE TUMOUR V. UNCLASSIFIED TUMOURS <b>Hyperplasia</b> VI. BENIGN OR APPARENTLY BENIGN DYSPLASIAS <sup>c</sup> VI.A. CYST VI.A.1. Nonpapillary VI.A.2. Papillary VI.B. ADENOSIS VI.C. REGULAR TYPICAL EPITHELIAL PROLIFERATION IN DUCTS OR LOBULES VI.D. DUCT ECTASIA VI.E. FIBROSCLEROSIS VI.F. GYNAECOMASTIA VI.G. OTHER NON-NEOPLASTIC PROLIFERATIVE LESIONS VI.G.1. Noninflammatory lobular hyperplasia VI.G.2. Inflammatory lobular hyperplasia	<b>1. Malignant Tumors</b> 1.1. Noninfiltrating (in situ) carcinoma 1.2. Complex carcinoma 1.3. Simple carcinoma 1.3.1. Tubulopapillary carcinoma 1.3.2. Solid carcinoma 1.3.3. Anaplastic carcinoma 1.4. Special types of carcinomas 1.4.1. Spindle cell carcinoma 1.4.2. Squamous cell carcinoma 1.4.3. Mucinous carcinoma 1.4.4. Lipid-rich carcinoma 1.5. Sarcoma 1.5.1. Fibrosarcoma 1.5.2. Osteosarcoma 1.5.3. Other sarcomas 1.6. Carcinosarcoma 1.7. Carcinoma or sarcoma in benign tumor <b>2. Benign Tumors</b> 2.1. Adenoma 2.1.1. Simple adenoma 2.1.2. Complex adenoma 2.1.3. Basaloid adenoma 2.2. Fibroadenoma 2.2.1. Low-cellularity fibroadenoma 2.2.2. High-cellularity fibroadenoma 2.3. Benign mixed tumor 2.4. Duct papilloma <b>3. Unclassified Tumors</b> <b>4. Mammary Hyperplasias/Dysplasias</b> 4.1. Ductal hyperplasia 4.2. Lobular hyperplasia 4.2.1. Epithelial hyperplasia 4.2.2. Adenosis 4.3. Cysts 4.4. Duct ectasia 4.5. Focal fibrosis (fibrosclerosis) 4.6. Gynecomastia	<b>1. Hyperplasia/Dysplasia</b> 1.1. Duct ectasia 1.2. Lobular hyperplasia (adenosis) 1.2.1. Regular lobular hyperplasia 1.2.2. Lobular hyperplasia with secretory activity (lactational) 1.2.3. Lobular hyperplasia with fibrosis 1.2.4. Lobular hyperplasia with atypia 1.3. Epitheliosis 1.4. Papillomatosis 1.5. Fibroadenomatous change 1.6. Gynecomastia <b>2. Benign Epithelial Neoplasms</b> 2.1. Simple benign tumors 2.1.1. Adenoma -simple 2.1.2. Myoepithelioma 2.2. Non-simple benign tumors 2.2.1. Complex adenoma (adenomyoepithelioma) 2.2.2. Benign mixed tumor 2.2.3. Fibroadenoma 2.3. Ductal-associated benign tumors 2.3.1. Ductal adenoma (basaloid adenoma) 2.3.2. Intraductal papillary adenoma (duct papilloma) <b>3. Malignant Epithelial Neoplasms</b> 3.1. Carcinoma in situ 3.2. Simple carcinomas 3.2.1. Tubular carcinoma (including cribriform carcinoma) 3.2.2. Tubulopapillary carcinoma 3.2.3. Solid carcinoma 3.2.4. Invasive micropapillary carcinoma 3.2.5. Comedocarcinoma 3.2.6. Anaplastic carcinoma 3.3. Non-simple carcinomas 3.3.1. Carcinoma arising in a complex adenoma/benign mixed tumor 3.3.2. Complex carcinoma 3.3.3. Carcinoma-and-malignant myoepithelioma 3.3.4. Mixed carcinoma 3.4. Ductal-associated carcinomas 3.4.1. Ductal carcinoma 3.4.2. Intraductal papillary carcinoma (including papillary-cystic carcinoma) <b>4. Malignant Epithelial Neoplasms -Special Types</b> 4.1. Squamous cell carcinoma 4.2. Adenosquamous carcinoma 4.3. Mucinous carcinoma 4.4. Lipid-rich (secretory) carcinoma 4.5. Spindle cell carcinoma (including spindle carcinoma with squamous differentiation) 4.6. Malignant myoepithelioma 4.7. Inflammatory mammary carcinoma <b>5. Malignant Mesenchymal Neoplasms of the Mammary Gland</b> 5.1. Osteosarcoma 5.2. Chondrosarcoma 5.3. Fibrosarcoma 5.4. Hemangiosarcoma 5.5. Other sarcomas <b>6. Carcinosarcoma</b> <b>7. Hyperplasia/Dysplasia of the Teat</b> 7.1. Melanosis of the skin of the teat 7.2. Hyperplasia of the teat <b>8. Neoplasms of the Teat</b> 8.1. Benign ductal-associated neoplasms 8.1.1. Ductal adenoma 8.1.2. Intraductal papillary adenoma 8.2. Malignant ductal-associated neoplasms 8.2.1. Ductal carcinoma 8.2.2. Intraductal papillary carcinoma 8.3. Carcinoma with epidermal infiltration (Paget-like disease)

a: The term " simple " is applied to any type of neoplasm or proliferation composed of cells resembling either secretory epithelial cells or myoepithelial cells.  
 b: The term " complex " is applied to any type of neoplasm or proliferation composed of cells resembling both secretory epithelial cells and myoepithelial cells.  
 c: The term " dysplasia " is used as defined in the WHO classification of human breast tumours and not in the sense of certain disorderly proliferations together with a certain degree of cytonuclear atypia.

犬乳腺腫瘍(TDA分類の比較)

Classification of Mammary Gland tumor of DOG		
TDA 3rd 1990	TDA 4th 2002	TDA 5th 2017
<b>Benign</b>	<b>Benign</b>	<b>Benign</b>
Multilobular hyperplasia	Simple Adenoma	Adenoma-simple
Adenoma	Basaloid Adenoma	Intraductal papillary adenoma
lobular	Complex Adenoma	Ductal adenoma
papillary	Benign Mixed Tumor	Ductal adenoma with squamous differentiation
Benign Mixed tumor	Fibroadenoma	Fibroadenoma
Benign myoepithelioma	Fibroadenomatous Change	Myoepithelioma
	Duct Papilloma	Complex adenoma (adenomyoepithelioma)
		Benign mixed tumor
<b>Malignant</b>	<b>Malignant</b>	<b>Malignant</b>
Carcinoma	Carcinoma	3. Malignant epithelial neoplasms
Lobular carcinoma	Noninfiltrating (in Situ) Carcinoma	Carcinoma - in situ
Papillary carcinoma	Complex carcinoma	Carcinoma - simple
Squamous carcinoma	Simple carcinoma	a.tubular
Scirrhus (fibrosing) carcinoma	Tubulopapillary Carcinoma	b.tubulopapillary
Malignant mixed tumor	Solid Carcinoma	c.cystic-papillary
Malignant myoepithelioma	Cribriform Carcinoma	d.cribriform
Paget's carcinoma of nipple	Anaplastic Carcinoma	Carcinoma - micropapillary invasive
	Special Types of Carcinoma	Carcinoma - solid
	Spindle Cell Carcinoma	Comedocarcinoma
	Carcinomas with Squamous Differentiation	Carcinoma - anaplastic
	Mucinous Carcinoma	Carcinoma arising in a complex adenoma/mixed tumor
	Lipid-Rich Carcinoma	Carcinoma - complex type
	Sarcoma	Carcinoma and malignant myoepithelioma
	Fibrosarcoma	Carcinoma - mixed type
	Osteosarcoma	Ductal carcinoma
	Carcinosarcoma	Intraductal papillary carcinoma
	Carcinomas or Sarcomas Arising in Benign Tumors	4. Malignant epithelial neoplasms - special types
	Unclassified Tumors in the Dog and Cat	Squamous cell carcinoma
		Adenosquamous cell carcinoma
		Mucinous carcinoma
		Lipid-rich (secretory) carcinoma
		Spindel cell carcinoma
		Malignant myoepithelioma
		Squamous cell carcinoma - spindle cell variant
		Carcinoma - spindele cell variant
		Inflammatory carcinoma
		5. Malignant mesenchymal neoplasms - sarcomas
		Osteosarcoma
		Chondrosarcoma
		Fibrosarcoma
		Hemangiosarcoma
		Other sarcoma
		6. Carcinosarcoma - malignant mixed mammary tumor
		7. Neoplasms of the nipple
		Neoplasms of the nipple-Adenoma
		Neoplasms of the nipple-Carcinoma
		Neoplasms of the nipple-Carcinoma with epidermal infiltration (Paget like disease)
		8. Hyperplasia/dysplasia of the nipple
		Melanosis of the skin of the nipple

WHO 2nd 1999	Goldschmidt, et al. 2011
<b>1. Malignant Tumors</b>	<b>1: Malignant Epithelial Neoplasms</b>
1.1. Noninfiltrating (in situ) carcinoma	Carcinoma-in situ
1.2. Complex carcinoma	Carcinoma-simple
1.3. Simple carcinoma	a. Tubular
1.3.1. Tubulopapillary carcinoma	b. Tubulopapillary
1.3.2. Solid carcinoma	c. Cystic-papillary
1.3.3. Anaplastic carcinoma	d. Cribriform
1.4. Special types of carcinomas	Carcinoma-micropapillary invasive
1.4.1. Spindle cell carcinoma	Carcinoma-solid
1.4.2. Squamous cell carcinoma	Comedocarcinoma
1.4.3. Mucinous carcinoma	Carcinoma-anaplastic
1.4.4. Lipid-rich carcinoma	Carcinoma arising in a complex adenoma/mixed tumor
1.5. Sarcoma	Carcinoma-complex type
1.5.1. Fibrosarcoma	Carcinoma and malignant myoepithelioma
1.5.2. Osteosarcoma	Carcinoma-mixed type
1.5.3. Other sarcomas	Ductal carcinoma
1.6. Carcinosarcoma	Intraductal papillary carcinoma
1.7. Carcinoma or sarcoma in benign tumor	<b>2: Malignant Epithelial Neoplasms—Special Types</b>
	Squamous cell carcinoma
	Adenosquamous carcinoma
	Mucinous carcinoma
	Lipid-rich (secretory) carcinoma
	Spindle cell carcinomas
	Malignant myoepithelioma
	Squamous cell carcinoma-spindle cell variant
	Carcinoma-spindle cell variant
	Inflammatory carcinoma (see Inflammatory Carcinoma section)
	<b>3: Malignant Mesenchymal Neoplasms—Sarcomas</b>
	Osteosarcoma
	Chondrosarcoma
	Fibrosarcoma
	Hemangiosarcoma
	Other sarcomas
	<b>4: Carcinosarcoma—Malignant Mixed Mammary Tumor</b>
<b>2. Benign Tumors</b>	<b>5: Benign Neoplasms</b>
2.1. Adenoma	Adenoma-simple
2.1.1. Simple adenoma	Intraductal papillary adenoma (duct papilloma)
2.1.2. Complex adenoma	Ductal adenoma (basaloid adenoma)
2.1.3. Basaloid adenoma	With squamous differentiation (keratohyaline granules)
2.2. Fibroadenoma	Fibroadenoma
2.2.1. Low-cellularity fibroadenoma	Myoepithelioma
2.2.2. High-cellularity fibroadenoma	Complex adenoma (adenomyoepithelioma)
2.3. Benign mixed tumor	Benign mixed tumor
2.4. Duct papilloma	
<b>3. Unclassified Tumors</b>	<b>6: Hyperplasia/Dysplasia</b>
<b>4. Mammary Hyperplasias/Dysplasias</b>	Duct ectasia
4.1. Ductal hyperplasia	Lobular hyperplasia (adenosis)
4.2. Lobular hyperplasia	Regular
4.2.1. Epithelial hyperplasia	With secretory activity (lactational)
4.2.2. Adenosis	With fibrosis-interlobular fibrous connective tissue
4.3. Cysts	With atypia
4.4. Duct ectasia	Epitheliosis
4.5. Focal fibrosis (fibrosclerosis)	Papillomatosis
4.6. Gynecomastia	Fibroadenomatous change
	Gynecomastia
	<b>7: Neoplasms of the Nipple</b>
	Adenoma
	Carcinoma
	Carcinoma with epidermal infiltration (Paget-like disease)
	<b>8: Hyperplasia/Dysplasia of the Nipple</b>
	Melanosis of the skin of the nipple

Goldschmidt, et al. 2011	TDA 5th, 2017	Goldschmidt, et al. 2011	TDA 5th, 2017
<b>6: Hyperplasia/Dysplasia</b>	<b>1. Hyperplasia/dysplasia</b>	<b>2: Malignant Epithelial Neoplasms—Special Types</b>	<b>4. Malignant epithelial neoplasms - special types</b>
Duct ectasia Lobular hyperplasia (adenosis) Regular With secretory activity (lactational) With fibrosis—interlobular fibrous connective tissue With atypia Epitheliosis Papillomatosis Fibroadenomatous change Gynecomastia	Duct ectasia Lobular hyperplasia (adenosis) Regular With secretory activity With fibrosis With atypia Epitheliosis Papillomatosis Fibroadenomatous change Gynecomastia	Squamous cell carcinoma Adenosquamous carcinoma Mucinous carcinoma Lipid-rich (secretory) carcinoma Spindle cell carcinomas Malignant myoepithelioma Squamous cell carcinoma—spindle cell variant Carcinoma—spindle cell variant Inflammatory carcinoma (see Inflammatory Carcinoma section)	Squamous cell carcinoma Adenosquamous cell carcinoma Mucinous carcinoma Lipid-rich (secretory) carcinoma Spindel cell carcinoma Malignant myoepithelioma Squamous cell carcinoma - spindle cell variant Carcinoma - spindele cell variant Inflammary carcinoma
<b>5: Benign Neoplasms</b>	<b>2. Benign neoplasms</b>	<b>3: Malignant Mesenchymal Neoplasms—Sarcomas</b>	<b>5. Malignant mesenchymal neoplasms - sarcomas</b>
Adenoma—simple Intraductal papillary adenoma (duct papilloma) Ductal adenoma (basaloid adenoma) With squamous differentiation (keratohyaline granules) Fibroadenoma Myoepithelioma Complex adenoma (adenomyoepithelioma) Benign mixed tumor	Adenoma—simple Intraductal papillary adenoma Ductal adenoma Ductal adenoma with squamous differentiation Fibroadenoma Myoepithelioma Complex adenoma (adenomyoepithelioma) Benign mixed tumor	Osteosarcoma Chondrosarcoma Fibrosarcoma Hemangiosarcoma Other sarcomas	Osteosarcoma Chondrosarcoma Fibrosarcoma Hemangiosarcoma Other sarcoma
<b>1: Malignant Epithelial Neoplasms</b>	<b>3. Malignant epithelial neoplasms</b>	<b>4: Carcinosarcoma—Malignant Mixed Mammary Tumor</b>	<b>6. Carcinosarcoma - malignant mixed mammary tumor</b>
Carcinoma—in situ Carcinoma—simple a. Tubular b. Tubulopapillary c. Cystic-papillary d. Cribriform Carcinoma—micropapillary invasive Carcinoma—solid Comedocarcinoma Carcinoma—anaplastic Carcinoma arising in a complex adenoma/mixed tumor Carcinoma—complex type Carcinoma and malignant myoepithelioma Carcinoma—mixed type Ductal carcinoma Intraductal papillary carcinoma	Carcinoma - in situ Carcinoma - simple a.tubular b.tubulopapillary c.cystic-papillary d.cribriform Carcinoma - micropapillary invasive Carcinoma - solid Comedocarcinoma Carcinoma - anaplastic Carcinoma arising in a complex adenoma/mixed tumor Carcinoma - complex type Carcinoma and malignant myoepithelioma Carcinoma - mixed type Ductal carcinoma Intraductal papillary carcinoma	<b>7: Neoplasms of the Nipple</b>	<b>7. Neoplasms of the nipple</b>
		Adenoma Carcinoma Carcinoma with epidermal infiltration (Paget-like disease)	Neoplasms of the nipple-Adenoma Neoplasms of the nipple-Carcinoma Neoplasms of the nipple-Carcinoma with epidermal infiltration (Paget like disease)
		<b>8: Hyperplasia/Dysplasia of the Nipple</b>	<b>8. Hyperplasia/dysplasia of the nipple</b>
		Melanosis of the skin of the nipple	Melanosis of the skin of the nipple

TDA第5版とSPの犬乳腺腫瘍分類の比較

TDA 5th, 2017	SP 2019	TDA 5th, 2017	SP 2019
<p><b>1. Hyperplasia/dysplasia</b></p> <ul style="list-style-type: none"> <li>Duct ectasia</li> <li>Lobular hyperplasia (adenosis) <ul style="list-style-type: none"> <li>Regular</li> <li>With secretory activity</li> <li>With fibrosis</li> <li>With atypia</li> </ul> </li> <li>Epitheliosis</li> <li>Papillomatosis</li> <li>Fibroadenomatous change</li> <li>Gynecomastia</li> </ul> <p><b>2. Benign neoplasms</b></p> <ul style="list-style-type: none"> <li>Adenoma-simple</li> <li>Myoepithelioma</li> <li>Complex adenoma (adenomyoepithelioma)</li> <li>Benign mixed tumor</li> <li>Fibroadenoma</li> <li>Ductal adenoma <ul style="list-style-type: none"> <li>Ductal adenoma with squamous differentiation</li> </ul> </li> <li>Intraductal papillary adenoma</li> </ul> <p><b>3. Malignant epithelial neoplasms</b></p> <ul style="list-style-type: none"> <li>Carcinoma - in situ</li> <li>Carcinoma - simple <ul style="list-style-type: none"> <li>a. tubular</li> <li>b. tubulopapillary</li> <li>c. cystic-papillary</li> <li>d. cribriform</li> </ul> </li> <li>Carcinoma - solid</li> <li>Carcinoma - micropapillary invasive</li> <li>Comedocarcinoma</li> <li>Carcinoma - anaplastic</li> <li>Carcinoma arising in a complex adenoma/mixed tumor</li> <li>Carcinoma - complex type</li> <li>Carcinoma and malignant myoepithelioma</li> <li>Carcinoma - mixed type</li> <li>Ductal carcinoma</li> <li>Intraductal papillary carcinoma</li> </ul>	<p><b>1. Hyperplasia/Dysplasia</b></p> <ul style="list-style-type: none"> <li>1.1. Duct ectasia</li> <li>1.2. Lobular hyperplasia (adenosis) <ul style="list-style-type: none"> <li>1.2.1. Regular lobular hyperplasia</li> <li>1.2.2. Lobular hyperplasia with secretory activity (lactational)</li> <li>1.2.3. Lobular hyperplasia with fibrosis</li> <li>1.2.4. Lobular hyperplasia with atypia</li> </ul> </li> <li>1.3. Epitheliosis</li> <li>1.4. Papillomatosis</li> <li>1.5. Fibroadenomatous change</li> <li>1.6. Gynecomastia</li> </ul> <p><b>2. Benign Epithelial Neoplasms</b></p> <ul style="list-style-type: none"> <li>2.1. Simple benign tumors <ul style="list-style-type: none"> <li>2.1.1. Adenoma -simple</li> <li>2.1.2. Myoepithelioma</li> </ul> </li> <li>2.2. Non-simple benign tumors <ul style="list-style-type: none"> <li>2.2.1. Complex adenoma (adenomyoepithelioma)</li> <li>2.2.2. Benign mixed tumor</li> <li>2.2.3. Fibroadenoma</li> </ul> </li> <li>2.3. Ductal-associated benign tumors <ul style="list-style-type: none"> <li>2.3.1. Ductal adenoma (basaloid adenoma)</li> <li>2.3.2. Intraductal papillary adenoma (duct papilloma)</li> </ul> </li> </ul> <p><b>3. Malignant Epithelial Neoplasms</b></p> <ul style="list-style-type: none"> <li>3.1. Carcinoma in situ</li> <li>3.2. Simple carcinomas <ul style="list-style-type: none"> <li>3.2.1. Tubular carcinoma (including cribriform carcinoma)</li> <li>3.2.2. Tubulopapillary carcinoma</li> <li>3.2.3. Solid carcinoma</li> <li>3.2.4. Invasive micropapillary carcinoma</li> <li>3.2.5. Comedocarcinoma</li> <li>3.2.6. Anaplastic carcinoma</li> </ul> </li> <li>3.3. Non-simple carcinomas <ul style="list-style-type: none"> <li>3.3.1. Carcinoma arising in a complex adenoma/benign mixed tumor</li> <li>3.3.2. Complex carcinoma</li> <li>3.3.3. Carcinoma-and-malignant myoepithelioma</li> <li>3.3.4. Mixed carcinoma</li> </ul> </li> <li>3.4. Ductal-associated carcinomas <ul style="list-style-type: none"> <li>3.4.1. Ductal carcinoma</li> <li>3.4.2. Intraductal papillary carcinoma (including papillary-cystic carcinoma)</li> </ul> </li> </ul>	<p><b>4. Malignant epithelial neoplasms - special types</b></p> <ul style="list-style-type: none"> <li>Squamous cell carcinoma</li> <li>Adenosquamous cell carcinoma</li> <li>Mucinous carcinoma</li> <li>Lipid-rich (secretory) carcinoma</li> <li>Spindel cell carcinoma <ul style="list-style-type: none"> <li>Malignant myoepithelioma</li> <li>Squamous cell carcinoma - spindle cell variant</li> <li>Carcinoma - spindele cell variant</li> </ul> </li> <li>Inflammary carcinoma</li> </ul> <p><b>5. Malignant mesenchymal neoplasms - sarcomas</b></p> <ul style="list-style-type: none"> <li>Osteosarcoma</li> <li>Chondrosarcoma</li> <li>Fibrosarcoma</li> <li>Hemangiosarcoma</li> <li>Other sarcoma</li> </ul> <p><b>6. Carcinosarcoma - malignant mixed mammary tumor</b></p> <p><b>7. Neoplasms of the nipple</b></p> <ul style="list-style-type: none"> <li>Adenoma</li> <li>Carcinoma</li> <li>Carcinoma with epidermal infiltration (Paget like disease)</li> </ul> <p><b>8. Hyperplasia/dysplasia of the nipple</b></p> <ul style="list-style-type: none"> <li>Melanosis of the skin of the nipple</li> </ul>	<p><b>4. Malignant Epithelial Neoplasms -Special Types</b></p> <ul style="list-style-type: none"> <li>4.1. Squamous cell carcinoma</li> <li>4.2. Adenosquamous carcinoma</li> <li>4.3. Mucinous carcinoma</li> <li>4.4. Lipid-rich (secretory) carcinoma</li> <li>4.5. Spindle cell carcinoma</li> <li>4.6. Malignant myoepithelioma</li> <li>4.7. Inflammatory mammary carcinoma</li> </ul> <p><b>5. Malignant Mesenchymal Neoplasms of the Mammary Gland</b></p> <ul style="list-style-type: none"> <li>5.1. Osteosarcoma</li> <li>5.2. Chondrosarcoma</li> <li>5.3. Fibrosarcoma</li> <li>5.4. Hemangiosarcoma</li> <li>5.5. Other sarcomas</li> </ul> <p><b>6. Carcinosarcoma</b></p> <p><b>8. Neoplasms of the Teat</b></p> <ul style="list-style-type: none"> <li>8.1. Benign ductal-associated neoplasms <ul style="list-style-type: none"> <li>8.1.1. Ductal adenoma</li> <li>8.1.2. Intraductal papillary adenoma</li> </ul> </li> <li>8.2. Malignant ductal-associated neoplasms <ul style="list-style-type: none"> <li>8.2.1. Ductal carcinoma</li> <li>8.2.2. Intraductal papillary carcinoma</li> </ul> </li> <li>8.3. Carcinoma with epidermal infiltration (Paget-like disease)</li> </ul> <p><b>7. Hyperplasia/Dysplasia of the Teat</b></p> <ul style="list-style-type: none"> <li>7.1. Melanosis of the skin of the teat</li> <li>7.2. Hyperplasia of the teat</li> </ul>

## 犬乳腺悪性腫瘍の生物学的挙動

3. Malignant Epithelial Neoplasms	
3.1. Carcinoma in situ	
3.2. Simple carcinomas	
3.2.1. Tubular carcinoma (including cribriform carcinoma)	グレードⅠ、Ⅱ、Ⅲに分類される症例があり、予後は様々（グレードⅠが主体）。局所再発率、遠隔転移率は通常低い（20%未満）。平均全生存期間は29ヶ月、1年生存率93%、2年生存率73%と他の単純癌の組織型に比べて長い。
3.2.2. Tubulopapillary carcinoma	グレードⅠ、Ⅱ、Ⅲに分類される症例があり、予後は様々。グレードが同等なら、管状癌より予後が悪い。局所再発率、遠隔転移率は低い（33%未満）。1年生存率75%、2年生存率67%で、平均全生存期間25ヶ月は管状癌を除く他のすべての単純癌の組織型よりも長い。
3.2.3. Solid carcinoma	グレードⅡまたはⅢ。40%を上回る症例でリンパ管や所属リンパ節への浸潤や遠隔転移を認める。充実癌の平均全生存期間は8ヶ月、1年生存率は45%、2年生存率は25%。
3.2.4. Invasive micropapillary carcinoma	この腫瘍は、高頻度で脈管侵襲を示し、高い転移能を有する。
3.2.5. Comedocarcinoma	この腫瘍は通常グレードⅢ。腫瘍周辺のリンパ管（真皮リンパ管を含む）への浸潤、所属リンパ節への転移が頻繁。管状癌や管状乳頭状癌に比べて悪性度が高い。局所再発や遠隔転移を伴うことが多い（82%）。生存期間中央値は18ヶ月、平均生存期間は14ヶ月、1年生存率は71%、2年生存率は29%。
3.2.6. Anaplastic carcinoma	ほとんどはグレードⅢ、時にグレードⅡの腫瘍と診断されることがある。グレードⅡの退形成癌がグレードⅢと異なる生物学的挙動を示すかどうかは不明。高い再発性・転移性（80%以上）を示す癌で、生存期間は短い（平均生存期間4.2ヶ月、中央生存期間3ヶ月）。退形成癌は炎症性乳癌で高頻度にみられる組織型であり、このような症例はさらに予後が悪いとされている。
3.3. Non-simple carcinomas	
3.3.1. Carcinoma arising in a complex adenoma/benign mixed tumor	この腫瘍は通常グレードⅠの悪性腫瘍であり、再発や転移は極めてまれである。
3.3.2. Complex carcinoma	通常、グレードⅠまたはⅡ。ごくまれにグレードⅢ。複合癌は単純癌に比べて侵襲性が低い。ごく少数の症例においてのみ局所再発や遠隔転移が報告されている。
3.3.3. Carcinoma-and-malignant myoepithelioma	複合癌よりも侵襲性が強く、局所再発（20%）やリンパ節及び遠隔転移（40%）のより高い傾向を有する。転移巣にはどちらか一方、あるいは両方の腫瘍細胞集団が確認される。
3.3.4. Mixed carcinoma	混合癌の生物学的挙動に関する情報は少ないが、再発または転移の頻度は低いと思われる。
3.4. Ductal-associated carcinomas	
3.4.1. Ductal carcinoma	通常、グレードⅠないしグレードⅡ。生物学的挙動に関する予後情報は不十分で、グレード分類の妥当性も不明確である。
3.4.2. Intraductal papillary carcinoma (including papillary-cystic carcinoma)	通常グレードⅠまたはⅡの癌で、局所再発（8%）及び遠隔転移（16%）のリスクは低い。平均全生存期間は20ヶ月であると思われる。
4. Malignant Epithelial Neoplasms -Special Types	
4.1. Squamous cell carcinoma	挙動は明らかでないが、皮膚扁平上皮癌と同様に局所浸潤性を示し、所属リンパ節に転移する可能性が考えられる。グレード分類することはできない。
4.2. Adenosquamous carcinoma	通常、グレードⅡまたはグレードⅢ。局所再発率（50%）および遠隔転移率（60%）が高い高侵襲性の腫瘍である。
4.3. Mucinous carcinoma	生物学的挙動は不明
4.4. Lipid-rich (secretory) carcinoma	生物学的挙動についてはほとんど不明だが、転移することがある。
4.5. Spindle cell carcinoma (including spindle carcinoma with squamous differentiation)	生物学的挙動は不明
4.6. Malignant myoepithelioma	生物学的挙動は不明
4.7. Inflammatory mammary carcinoma	所属リンパ節への転移が多く予後不良。鼠径部や大腿内側の皮膚に逆行性リンパ行性転移を起こす症例も割合多い。泌尿生殖器系への転移も多い傾向がある。
5. Malignant Mesenchymal Neoplasms of the Mammary Gland	
5.1. Osteosarcoma	他の部位に発生する骨外性骨肉腫と同様。主に血行性経路で肺に転移するが、時に所属リンパ節に転移することもある。
5.2. Chondrosarcoma	ほとんどは外科切除が可能で、転移を起こす症例は少ない。
5.3. Fibrosarcoma	一般的でないため、生物学的挙動に関する情報はほとんどない。
5.4. Hemangiosarcoma	予後は不明だが、転移のリスクが高いことが想定される。
5.5. Other sarcomas	
6. Carcinosarcoma	侵襲性の腫瘍。全生存期間中央値が3ヶ月、平均生存期間が4ヶ月。局所再発や転移は一般的。管腔上皮成分はリンパ管を介して所属リンパ節や肺に転移し、間葉系成分は血行性経路で肺に転移する。一部の局所・遠隔転移巣には、両方の成分（管腔上皮および間葉系）が存在する。
8. Neoplasms of the Teat	
8.2. Malignant ductal-associated neoplasms	
8.2.1. Ductal carcinoma	生物学的挙動のフォローアップ情報は不十分。グレード分類の妥当性に関する追跡情報も不十分。
8.2.2. Intraductal papillary carcinoma	生物学的挙動のフォローアップ情報は不十分。グレード分類の妥当性に関する追跡情報も不十分。
8.3. Carcinoma with epidermal infiltration (Paget-like disease)	乳頭の表皮に浸潤する癌で、通常、下にある乳腺の癌と関連している。 ヒト症例のデータによると、表皮内浸潤の発生は、Paget様浸潤を持たない同様の下部の癌と比較して予後不良（生存期間の短縮、リンパ節への播種など）の指標であることが示されている。

猫乳腺悪性腫瘍の生物学的挙動

3. Malignant Epithelial Neoplasms	
3.1. Carcinoma in situ	
3.2. Simple carcinomas	
3.2.1. Tubular carcinoma (including cribriform carcinoma)	グレードⅡのこともあるが、グレードⅢであることがより多く、そのため侵襲的な挙動が予測される。
3.2.2. Tubulopapillary carcinoma	しばしば侵襲的で浸潤性を示し、転移することがある。特にグレードⅢの腫瘍が多い。
3.2.3. Solid carcinoma	通常グレードⅡまたはⅢである。
3.2.4. Invasive micropapillary carcinoma	しばしば脈管侵襲を示し、高い転移能を有する。
3.2.5. Comedocarcinoma	診断時点で、腫瘍辺縁でのリンパ管侵襲や所属リンパ節への転移は頻繁。
3.2.6. Anaplastic carcinoma	多くはグレードⅢだが、まれにグレードⅡと評価されることがある。退形成癌は高頻度に再発や転移を起こす。
3.3. Non-simple carcinomas	
3.4. Ductal-associated carcinomas	
3.4.1. Ductal carcinoma	生物学的挙動に関するフォローアップ情報が不十分。グレード分類の妥当性についても情報不十分。
3.4.2. Intraductal papillary carcinoma (including papillary-cystic carcinoma)	生物学的挙動に関するフォローアップ情報は不十分。乳管関連性の腫瘍は、非乳管関連性の腫瘍に比較すると侵襲性がやや低い。
4. Malignant Epithelial Neoplasms Special Types	
4.1. Squamous cell carcinoma	挙動は明らかではないが、皮膚の扁平上皮癌と同様に、局所浸潤性で所属リンパ節に転移する可能性がある。利用可能なグレード分類はない。
4.2. Adenosquamous carcinoma	生物学的挙動やグレード分類の妥当性に関するフォローアップ情報は不十分。
4.3. Mucinous carcinoma	生物学的挙動は不明。
4.4. Lipid-rich (secretory) carcinoma	生物学的挙動は不明。
4.5. Spindle cell carcinoma (including spindle carcinoma with squamous differentiation)	生物学的挙動は不明。
4.6. Inflammatory mammary carcinoma	予後は悪く、しばしば所属リンパ節への転移を起こす。逆行性にリンパ管を伝って鼠径部や大腿内側の皮膚に広がることもある。
5. Malignant Mesenchymal Neoplasms of the Mammary Gland	
5.1. Osteosarcoma	他の骨外性骨肉腫の挙動と同様であるが情報が不足している。
5.2. Chondrosarcoma	他の部位の軟骨肉腫と類似していると考えられるが、まれな腫瘍のため、生物学的挙動に関する情報はほとんどない。
5.3. Fibrosarcoma	一般的ではない乳腺腫瘍で、生物学的挙動に関する情報はほとんどない。
5.4. Hemangiosarcoma	予後は不明だが、転移の危険性が高いと考えられる。
5.5. Other sarcomas	
6. Carcinosarcoma	生物学的挙動は不明だが、局所再発・転移が一般的な悪性度の高い腫瘍と考えられている。
8. Neoplasms of the Teat	
8.2. Malignant ductal-associated neoplasms	
8.2.1. Ductal carcinoma	生物学的挙動のフォローアップ情報は不十分。
8.2.2. Intraductal papillary carcinoma	生物学的挙動のフォローアップ情報は不十分。
8.3. Carcinoma with epidermal infiltration (Paget-like disease)	乳頭の表皮に浸潤する癌で、通常、下にある乳腺の癌と関連している。ヒト症例のデータによると、表皮内浸潤の発生は、Paget様浸潤を持たない同様の下部の癌と比較して予後不良(生存期間の短縮、リンパ節への播種など)の指標であることが示されている。



Classification of Mammary Gland tumor of CAT		
WHO 1st 1974	WHO 2nd 1999	Surgical Pathology 2019
<b>Malignant Tumor</b>	<b>1. Malignant Tumors</b>	<b>1. Hyperplasia/Dysplasia</b>
I. CARCINOMA	1.1. Noninfiltrating (in situ) carcinoma	1.1. Duct ectasia
I.A. ADENOCARCINOMA	1.2. Tubulopapillary carcinoma	1.2. Lobular hyperplasia (adenosis)
I.A.1. Tubular	1.3. Solid carcinoma	1.2.1. Regular lobular hyperplasia
I.A.1.(a) simple type <sup>a</sup>	1.4. Cribriform carcinoma	1.2.2. Lobular hyperplasia with secretory activity (lactational)
I.A.1.(b) complex type <sup>b</sup>	1.5. Squamous cell carcinoma	1.2.3. Lobular hyperplasia with fibrosis
I.A.2. Papillary	1.6. Mucinous carcinoma	1.2.4. Lobular hyperplasia with atypia
I.A.2.(a) simple type	1.7. Carcinosarcoma	1.3. Epitheliosis
I.A.2.(b) complex type	1.8. Carcinoma or sarcoma in benign tumor	1.4. Papillomatosis
I.A.3. Papillary cystic	<b>2. Benign Tumors</b>	1.5. Fibroadenomatous change
I.A.3.(a) simple type	2.1. Adenoma	<b>2. Benign Epithelial Neoplasms</b>
I.A.3.(b) complex type	2.1.1. Simple adenoma	2.1. Simple benign tumors
I.B. SOLID CARCINOMA	2.1.2. Complex adenoma	2.1.1. Adenoma -simple
I.B.(a) simple type	2.2. Fibroadenoma	2.2. Non-simple benign tumors
I.B.(b) complex type	2.2.1. Low-cellularity fibroadenoma	2.3. Ductal-associated benign tumors
I.C. SPINDLE CELL CARCINOMA	2.2.2. High-cellularity fibroadenoma	2.3.1. Ductal adenoma (basaloid adenoma)
I.C.(a) simple type	2.3. Benign mixed tumor	2.3.2. Intraductal papillary adenoma (duct papilloma)
I.C.(b) complex type	2.4. Duct papilloma	<b>3. Malignant Epithelial Neoplasms</b>
I.D. ANAPLASTIC CARCINOMA	<b>3. Unclassified Tumors</b>	3.1. Carcinoma in situ
I.E. SQUAMOUS CELL CARCINOMA	<b>4. Mammary Hyperplasias/Dysplasias</b>	3.2. Simple carcinomas
I.F. MUCINOUS CARCINOMA	4.1. Ductal hyperplasia	3.2.1. Tubular carcinoma (including cribriform carcinoma)
II. SARCOMA	4.2. Lobular hyperplasia	3.2.2. Tubulopapillary carcinoma
II.A. OSTEOSARCOMA	4.2.1. Epithelial hyperplasia	3.2.3. Solid carcinoma
II.B. FIBROSARCOMA	4.2.2. Adenosis	3.2.4. Invasive micropapillary carcinoma
II.C. OSTEOCHONDROSARCOMA (FIBRO-LIPO-OSTEOCHONDROSARCOMA)	4.2.3. Fibroadenomatous change	3.2.5. Comedocarcinoma
[COMBINED SARCOMA]	(feline mammary hypertrophy, fibroepithelial hypertrophy)	3.2.6. Anaplastic carcinoma
II.D. OTHER SARCOMAS	4.3. Cysts	3.3. Non-simple carcinomas
III. CARCINOSARCOMA(MALIGNANT MIXED TUMOUR)	4.4. Duct ectasia	3.4. Ductal-associated carcinomas
<b>Benign Tumor</b>	4.5. Focal fibrosis (fibrosclerosis)	3.4.1. Ductal carcinoma
IV. BENIGN OR APPARENTLY BENIGN TUMOURS		3.4.2. Intraductal papillary carcinoma
IV.A. ADENOMA		(including papillary-cystic carcinoma)
IV.B. PAPILOMA		<b>4. Malignant Epithelial Neoplasms Special Types</b>
IV.B.1. Duct papilloma		4.1. Squamous cell carcinoma
IV.B.2. Duct papillomatosis		4.2. Adenosquamous carcinoma
IV.C. FIBROADENOMA		4.3. Mucinous carcinoma
IV.C.1. Pericanalicular		4.4. Lipid-rich (secretory) carcinoma
IV.C.2. Intracanalicular		4.5. Spindle cell carcinoma
IV.C.2.(a) noncellular type		(including spindle carcinoma with squamous differentiation)
IV.C.2.(b) cellular type		4.6. Inflammatory mammary carcinoma
IV.C.3. Benign mixed tumour		<b>5. Malignant Mesenchymal Neoplasms of the Mammary Gland</b>
IV.C.4. Total fibroadenomatous change		5.1. Osteosarcoma
IV.D. BENIGN SOFT-TISSUE TUMOUR		5.2. Chondrosarcoma
V. UNCLASSIFIED TUMOURS		5.3. Fibrosarcoma
<b>Hyperplasia</b>		5.4. Hemangiosarcoma
VI. BENIGN OR APPARENTLY BENIGN DYSPLASIAS <sup>c</sup>		5.5. Other sarcomas
VIA. CYST		<b>6. Carcinosarcoma</b>
VIA.1. Nonpapillary		
VIA.2. Papillary		<b>7. Hyperplasia/Dysplasia of the Teat</b>
VII.B. ADENOSIS		7.1. Hyperplasia of the teat
VIII.C. REGULAR TYPICAL EPITHELIAL PROLIFERATION IN DUCTS OR LOBULES		<b>8. Neoplasms of the Teat</b>
VIII.D. DUCT ECTASIA		8.1. Benign ductal-associated neoplasms
VIII.E. FIBROSCLEROSIS		8.1.1. Ductal adenoma
VIII.F. GYNAECOMASTIA		8.1.2. Intraductal papillary adenoma
VIII.G. OTHER NON-NEOPLASTIC PROLIFERATIVE LESIONS		8.2. Malignant ductal-associated neoplasms
VIII.G.1. Noninflammatory lobular hyperplasia		8.2.1. Ductal carcinoma
VIII.G.2. Inflammatory lobular hyperplasia		8.2.2. Intraductal papillary carcinoma
		8.3. Carcinoma with epidermal infiltration (Paget-like disease)

a: The term " simple " is applied to any type of neoplasm or proliferation composed of cells resembling either secretory epithelial cells or myoepithelial cells.  
 b: The term " complex " is applied to any type of neoplasm or proliferation composed of cells resembling both secretory epithelial cells and myoepithelial cells.  
 c: The term " dysplasia " is used as defined in the WHO classification of human breast tumours and not in the sense of certain disorderly proliferations together with a certain degree of cytonuclear atypia.

猫乳腺腫瘍(TDA分類の比較)

Classification of Mammary Gland tumor of CAT		
TDA 3rd 1990	TDA 4th 2002	TDA 5th 2017
<b>Benign</b> (Adenoma) (myoepithelioma) (mixed tumor)	<b>Benign</b> Simple Adenoma Basaloid Adenoma Complex Adenoma Benign Mixed Tumor Fibroadenoma Fibroadenomatous Change Duct Papilloma	<b>Benign</b> Adenoma-simple Intraductal papillary adenoma Ductal adenoma Fibroadenoma Malignant Tumor
<b>Malignant</b> Carinoma	<b>Malignant</b> Carcinoma Noninfiltrating (in Situ) Carcinoma Complex carcinoma Simple carcinoma Tubulopapillary Carcinoma Solid Carcinoma Cribriform Carcinoma Anaplastic Carcinoma Special Types of Carcinoma Spindle Cell Carcinoma Carcinomas with Squamous Differentiation Mucinous Carcinoma Lipid-Rich Carcinoma Sarcoma Fibrosarcoma Osteosarcoma Carcinosarcoma Carcinomas or Sarcomas Arising in Benign Tumors	<b>Malignant</b> Carcinoma - in situ Carcinoma - simple a.tubular b.tubulopapillary c.cystic-papillary d.cribriform Carcinoma - micropapillary invasive Carcinoma - solid Comedocarcinoma Carcinoma - anaplastic Intraductal papillary carcinoma Ductal carcinoma 4. Malignant epithelial neoplasms - special types Squamous cell carcinoma Adenosquamous cell carcinoma Mucinous carcinoma Lipid-rich (secretory) carcinoma Spindel cell carcinoma Squamous cell carcinoma - spindle cell variant Carcinoma - spindele cell variant Inflammary carcinoma 5. Malignant mesenchymal neoplasms - sarcomas Fibrosarcoma Other sarcoma
	<b>Unclassified Tumors in the Dog and Cat</b>	