

Osteopathy in the Oncology Field

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Big Picture



Winning the fight against cancer, every day.®

- Who created Calculus?
- Why?
- What led Dr. Still to discover Osteopathy?
- Why are we different?

Andrew T. Still : *Autobiography*



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“I decided then that God was not a guessing God, but a God of truth. And all His works, spiritual and material, are harmonious... So a wise God had certainly placed the remedy within the material house in which the spirit of life dwells.”

What is the Root of Osteopathy?



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“So God created mankind in his own image, in the image of God he created them; male and female he created them.”

Genesis 1:27

Introduction to Osteopathy in The Oncology Field



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- Breast Cancer
- Head and Neck Cancer
- Colon Cancer

“An osteopath reasons from his knowledge of anatomy. He compares the work of the abnormal body with the normal body.”

A. T. Still MD, DO, Osteopathy Research and Practice

Andrew T. Still : *Autobiography*



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“Soon I saw the green islands of health all over the sea of reason... all the remedies necessary to health exist in the human body... Man should study and use the drugs compounded in his own body.”

Breast cancer scenario #1



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A 57-year old woman undergoes follow-up evaluation. The patient underwent bilateral breast reduction surgery 3 months ago. The initial pathology report noted bilateral atypical ductal hyperplasia. Examination of additional pathology specimens showed no evidence of carcinoma. A mammogram obtained 2 months prior to the breast reduction surgery was normal.

The patient has been taking continuous conjugated estrogen and medroxyprogesterone hormone replacement therapy (HRT) since menopause at age 50 years. HRT has been tapered since the diagnosis of atypical ductal hyperplasia, and plans are to discontinue therapy in 1 month. There is no family history of breast or ovarian cancer.

On physical examination, vital signs are normal. Well-healed mastopexy incisions with mild induration are present. There are no breast masses. The remainder of the examination is unremarkable.

Breast cancer scenario #1 (continued):



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Which of the following is the most appropriate breast cancer prevention strategy?

- A. Begin antiestrogen chemoprevention therapy
- B. Begin vitamin D supplementation
- C. Bilateral prophylactic mastectomy
- D. Continue hormone replacement therapy

Patients with newly diagnosed atypical ductal hyperplasia should be offered breast cancer chemoprophylaxis; exemestane (Aromasin) is associated with the greatest reduction in breast cancer risk.

Breast cancer scenario #2



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A 32-year old woman undergoes postoperative follow-up evaluation. The patient was diagnosed with a 1.9-cm, stage II, estrogen receptor-positive, progesterone receptor-positive, HER2-positive grade 3 invasive ductal carcinoma of the left breast, with 2/6 positive lymph nodes. She underwent breast excision 2 weeks ago. Medical history is otherwise noncontributory. She and her husband have one child and wish to have additional children.

On physical examination, vital signs are normal. There is a healing left breast incision. There is no lymphadenopathy. The remainder of the examination is unremarkable.

Laboratory studies are normal.

Breast cancer scenario #2



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Which of the following is the most appropriate next step in the management of this patient?

- A. Begin adjuvant chemotherapy with out trastuzumab
- B. Delay chemotherapy until after further childbearing
- C. Recommend embryo cryopreservation before chemotherapy
- D. Advise against further pregnancies

Women being treated for breast cancer who wish to preserve fertility should be referred to a fertility specialist to discuss embryo cryopreservation or other fertility preservations methods before adjuvant chemotherapy is initiated.

Types of Breast Cancer



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Breast cancer can begin in different areas of the breast — the ducts, the lobules, or in some cases, the tissue in between. In this section, you can learn about the different types of breast cancer, including non-invasive, invasive, recurrent, and metastatic breast cancers, as well as the intrinsic or molecular subtypes of breast cancer.

- DCIS (Ductal Carcinoma in Situ)
- IDC (Invasive Ductal Carcinoma)
- IDC Type ((Tubular Carcinoma of the Breast)
- IDC Type (Medullary Carcinoma of the Breast)
- IDC Type (Mucinous Carcinoma of the Breast)
- IDC Type (Papillary Carcinoma of the Breast)
- IDC Type (Cribriform Carcinoma of the Breast)
- ILC (Invasive Lobular Carcinoma)
- Inflammatory Breast Cancer
- LCIS (Lobular Carcinoma in Situ)
- Male Breast Cancer
- Molecular Subtypes of Breast Cancer
- Phyllodes Tumors of the Breast
- Recurrent & Metastatic Breast Cancer

Source: Breastcancer.org

Two Most Common types of Breast Cancer



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- **Ductal carcinoma**

These cancers start in the cells lining the milk ducts and make up the majority of breast cancers.

- **Ductal carcinoma in situ (DCIS)** - This cancer is only located in the duct.
- **Invasive or infiltrating ductal carcinoma** - This is cancer that has spread outside of the duct

- **Lobular carcinoma**

This is cancer that starts in the lobules.

- **Lobular carcinoma in situ (LCIS)** Only located in the lobules. LCIS is not considered cancer. However, LCIS is a risk factor for developing invasive breast cancer in both breasts

Breast Cancer Risk Factors



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- **General Risk factors:**
 - Aging
 - Gender
- **Genetics**
 - Family history
 - Inherited factors
- **Body**
 - Obesity
 - Not having children
 - High breast density
 - Certain breast changes
 - Menstrual history
- **Lifestyle:**
 - A sedentary lifestyle
 - Heavy drinking
- **Previous treatments**
 - Birth control pills
 - post-menopausal hormone therapy (PHT)
 - Radiation

Source: Breastcancer.org

Breast Cancer Staging Criteria



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There are 2 types of TNM staging for breast cancer. First, the clinical stage is based on the results of tests done before surgery, which may include physical examination, mammogram, ultrasound, and MRI scans. Then, the pathologic stage is assigned based on the pathology results from the breast tissue and any lymph nodes removed during surgery. In general, more importance is placed on the pathologic stage than the clinical stage.

Tumor:

- **TX:** The primary tumor cannot be evaluated.
- **T0 (T plus zero):** There is no evidence of cancer in the breast.
- **Tis:** Refers to *carcinoma in situ*. The cancer is confined within the ducts or lobules of the breast tissue and has not spread into the surrounding tissue of the breast. There are types of breast carcinoma in situ:
 - **Tis (DCIS):** DCIS is a noninvasive cancer, but if not removed it can develop into an invasive breast cancer later. DCIS means that cancer cells have been found in breast ducts and have not spread past the layer of tissue where they began.
 - **Tis (LCIS):** Lobular carcinoma in situ (LCIS) describes abnormal cells found in the lobules or glands of the breast. LCIS is not cancer, but it increases the risk of developing invasive breast cancer.
 - **Tis(Paget's):** Paget's disease of the nipple is a rare form of early, noninvasive cancer that is only in the skin cells of the nipple. Sometimes Paget's disease is associated with another, invasive breast cancer. If there is also an invasive breast cancer present, it is classified according to the stage of the invasive tumor.
- **T1:** The invasive part of the tumor in the breast is 20 millimeters (mm) or smaller in size at its widest area. This is a little less than an inch. This stage is then broken into 3 substages depending on the size of the tumor:
 - T1a is a tumor that is larger than 1 mm, but 5 mm or smaller.
 - T1b is a tumor that is larger than 5 mm, but 10 mm or smaller.
 - T1c is a tumor that is larger than 10 mm, but 20 mm or smaller.
- **T2:** The invasive part of the tumor is larger than 20 mm but not larger than 50 mm.
- **T3:** The invasive part of the tumor is larger than 50 mm.
- **T4:** The tumor falls into 1 of the following groups:
 - T4a means the tumor has grown into the chest wall.
 - T4b is when the tumor has grown into the skin.
 - T4c is cancer that has grown into the chest wall and the skin.
 - T4d is [inflammatory breast cancer](#).

Breast Cancer Staging Criteria (continued)



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Node:

Lymph nodes located under the arm, above and below the collarbone, and under the breastbone are called regional lymph nodes. Lymph nodes in other parts of the body are called distant lymph nodes. As explained above, if the doctor evaluates the lymph nodes before surgery, based on other tests and/or a physical examination, a letter “c” for “clinical” staging is placed in front of the “N.” If the doctor evaluates the lymph nodes after surgery, which is a more accurate assessment, a letter “p” for “pathologic” staging is placed in front of the “N.” The information below describes the pathologic staging.

- **NX:** The lymph nodes cannot be evaluated.
- **N0:** No cancer was found in the lymph nodes.
- **N0(i+):** When very small areas of “isolated” tumor cells are found in a lymph node under the arm, called the axillary lymph nodes. This is usually less than 0.2 mm or less than 200 cells. In this stage, the nodes are still called N0, but an “i+” is also listed.
- **N1mic:** Cancer in the axillary lymph nodes is larger than 0.2 mm but less than 2 mm in size and can only be seen through a microscope. This is often called a micrometastasis.
- **N1:** The cancer has spread to 1 to 3 *axillary* lymph nodes under the arm, and is at least 2 mm in size. This is called a macrometastasis. This category can include positive internal mammary lymph nodes if they are found during a sentinel lymph node procedure and not through other tests. The internal mammary lymph nodes are located under the sternum or breastbone.
- **N2:** The cancer within the lymph nodes falls into 1 of the following groups:
 - N2a is when the cancer has spread to 4 to 9 axillary, or underarm, lymph nodes.
 - N2b is when the cancer has spread to or to internal mammary lymph nodes without spread to the axillary nodes.
- **N3:** The cancer falls within 1 of the following groups:
 - N3a is when the cancer has spread to 10 or more lymph nodes under the arm or to those located under the clavicle, or collarbone.
 - N3b is when the cancer has spread to the internal mammary nodes and the axillary nodes. N3c is when the cancer has spread to the lymph nodes located above the clavicle, called the supraclavicular lymph nodes.

Source: Cancer.net (ASCO Patient Information Website)

Breast Cancer Staging Criteria (continued)



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Metastasis (M)

Evidence of metastatic cancer means this is no longer considered early-stage or locally advanced cancer.

- **MX:** Distant spread cannot be evaluated.
- **M0:** The disease has not metastasized.
- **M0 (i+):** There is no clinical or radiographic evidence of distant metastases. Microscopic evidence of tumor cells is found in the blood, bone marrow, or other lymph nodes that are no larger than 0.2 mm.
- **M1:** There is evidence of metastasis to another part of the body, meaning there are breast cancer cells growing in other organs.

Post Mastectomy Chest Wall Pain Syndrome



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First Reported in 1978 Wood

Foley 1987

Granek 1984

Incidence



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Stevens, Carpenter et al 1998 $\approx$ 20%

Fassoulaki/Maunsell/Tasmuth/Wallace 50% or more

Epidemiology Risk Factors:

1. Prior breast surgery
2. Tumor located in the upper lateral quadrant
3. Young age; African Americans and Latinas >> Whites
4. Sectioning of the intercostobrachial nerve
5. Dissection of the axillary lymph node
6. Phantom breast pain
7. Neuroma/ scar pain

Complaints of Patients



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- “Tolerable during the day.”
- “I can’t reach over my head.”
- “My shoulders are pulled forward.”
- “I keep thinking to flex the chest muscles and make them stronger, I stretch, I massage, I work out. I can’t seem to get it right.”
- “I can’t sleep at night. I wake up to readjust myself.”

Chronic Post-Surgical Pain



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1. Pain develops after a surgical operation.
2. Pain lasts for at least two months.
3. Other causes of pain (infection/ cancer) are not present.
4. The pain is not pain continuing from the patient's original condition.

Phantom Pain



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- Scar pain – nearly a third of mastectomy patients
- More patients, whose reconstruction involved implants, have pain than those who did not have implants.

Prevention



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- Venlafacine (Effexor) the night before surgery and post operatively for two weeks.
- ★ Decreased pain with movement of the chest wall and arm pain at 6 months.
- Early physical therapy may help to prevent the functional limitations in the affected arm in cases of frozen shoulder.
- Fat Transfer

Tried Treatments for Chest Wall Pain



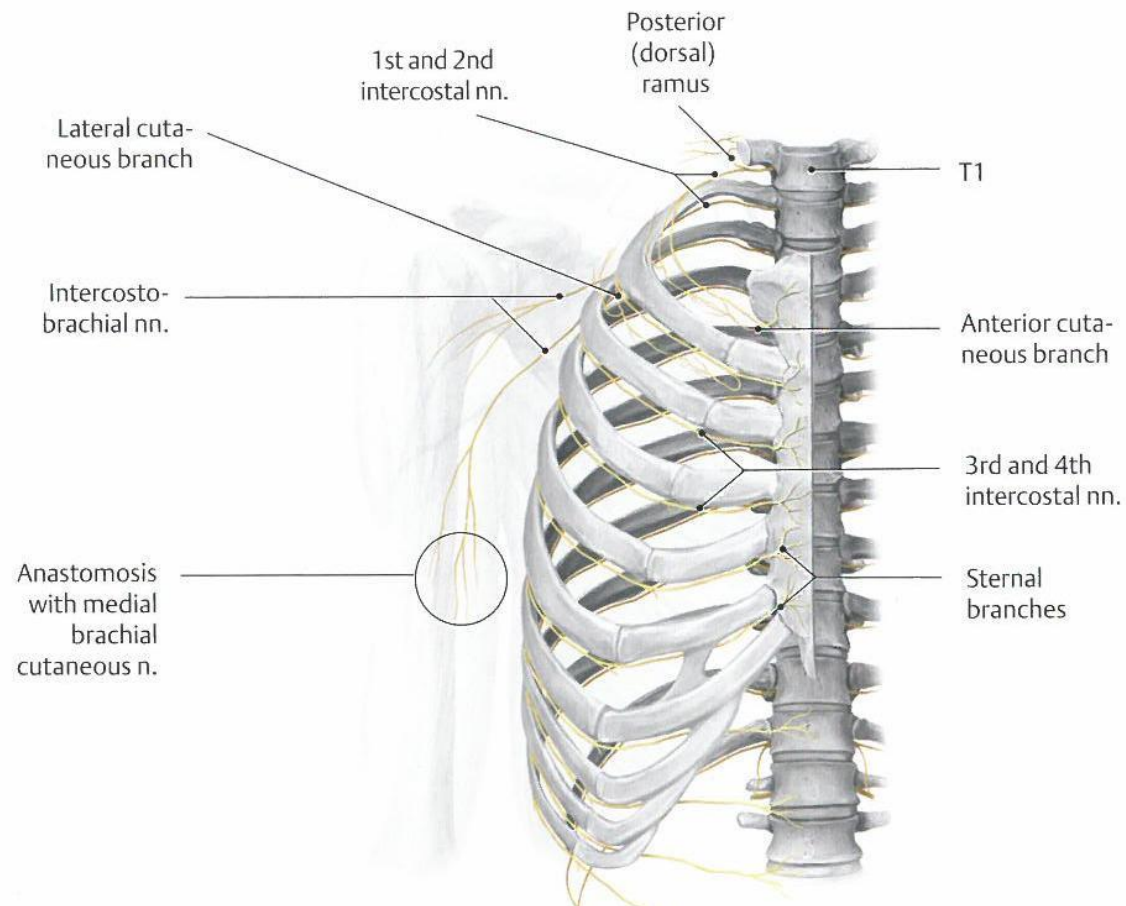
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- Rest
- Cold and Warm Compresses
- Deep Breathing Exercises – Incentive Spirometry
- Narcotic Medication – Moderate to Severe Breast Pain
- NSAID: Ibuprofen/Naproxen/Celecoxib
- Muscle Relaxants
- Physical Therapy
- Nerve Block
- Acupuncture, Massage, Psychotherapy
- Clonidine
- Neurostimulation
- Intraspinal Therapies
- Neuropathic Pain – Anticonvulsants, Tricyclic Antidepressants, Opioids, Gabapentin
- Official Side Sleeper Pillow™
- Topical Capsaicin

Intercostal Nerves

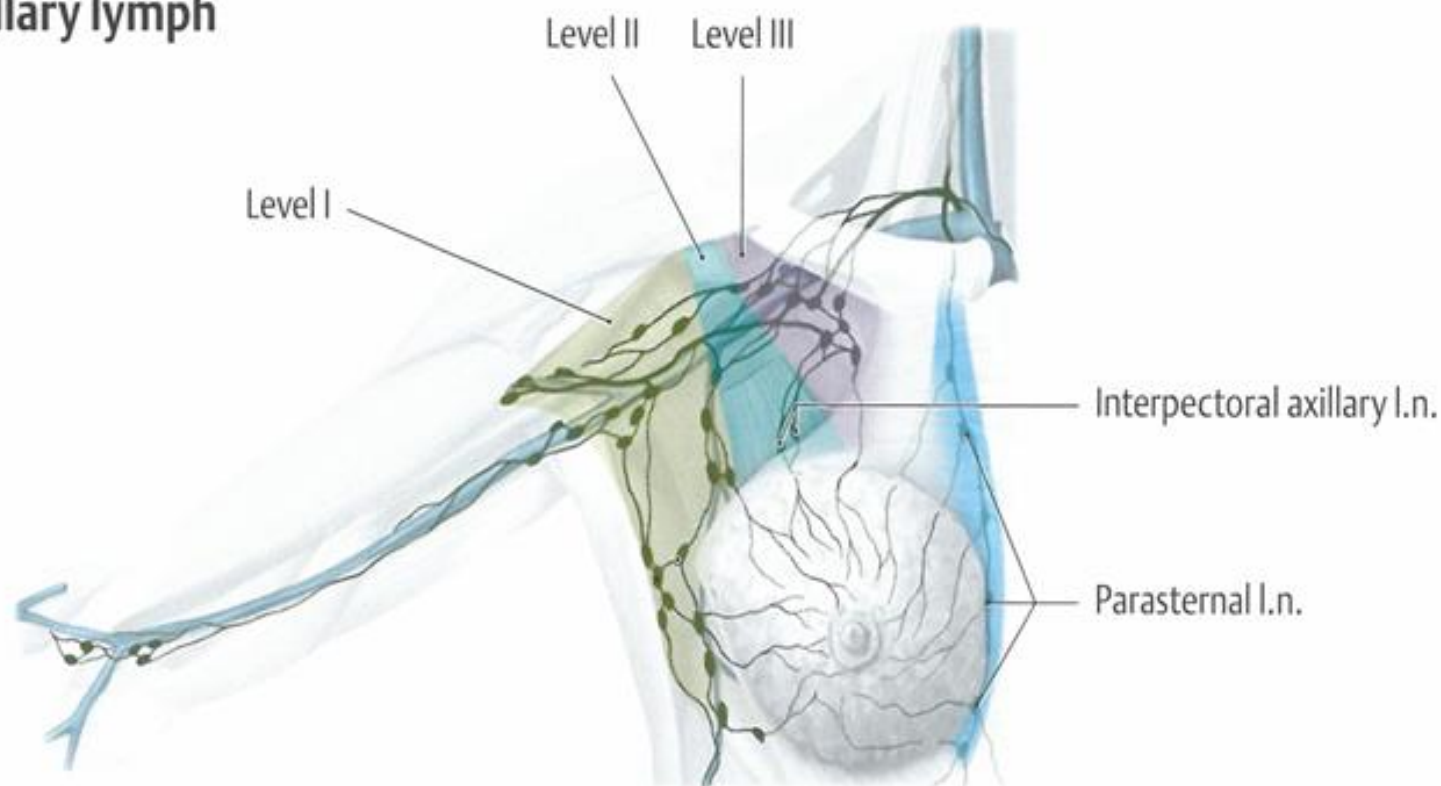
Fig. 5.21 Intercostal nerves

Anterior view. The 1st rib has been removed to reveal the 1st and 2nd intercostal nerves.

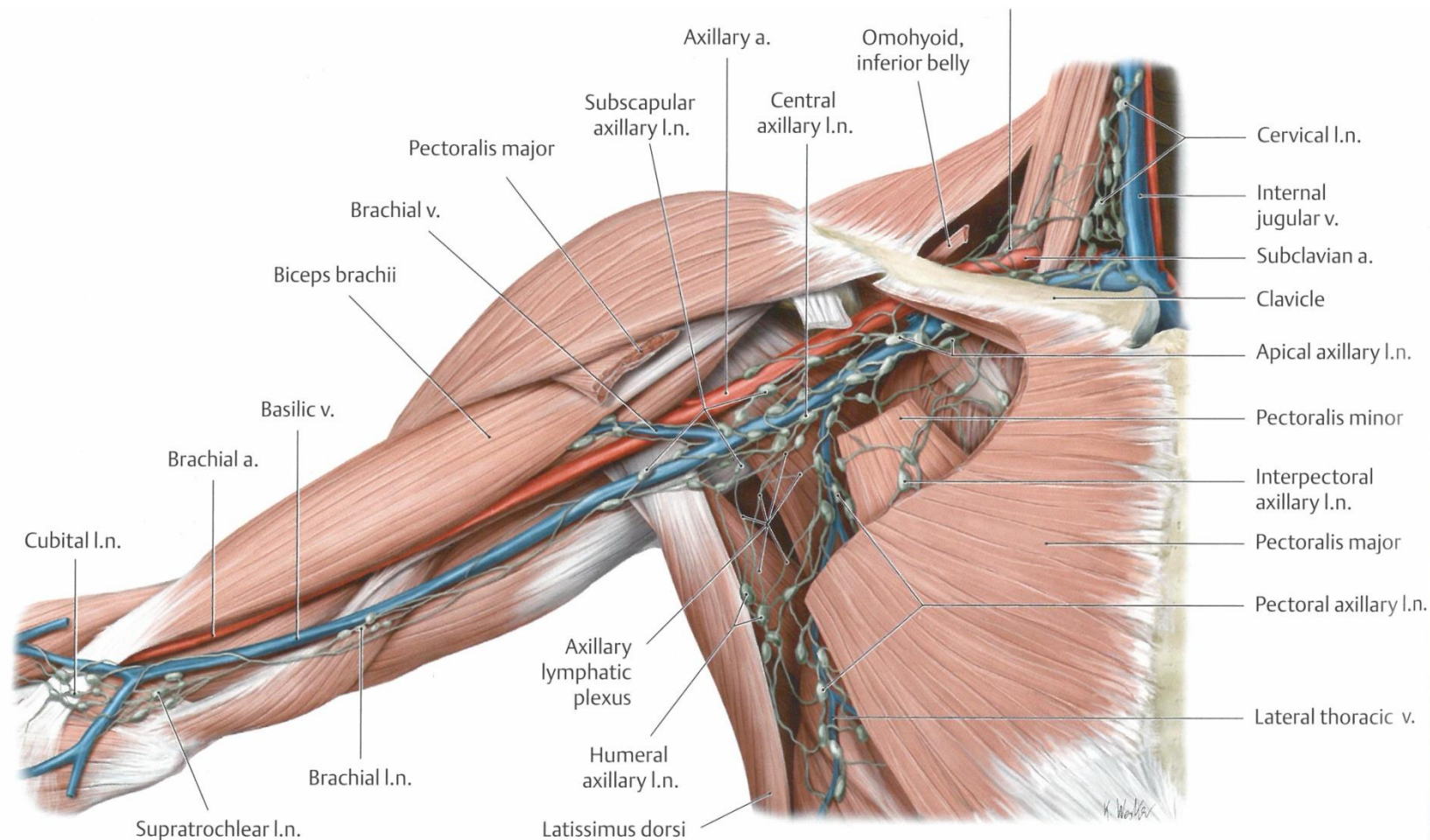


Axillary Lymph Nodes

Fig. 5.33 Axillary lymph nodes

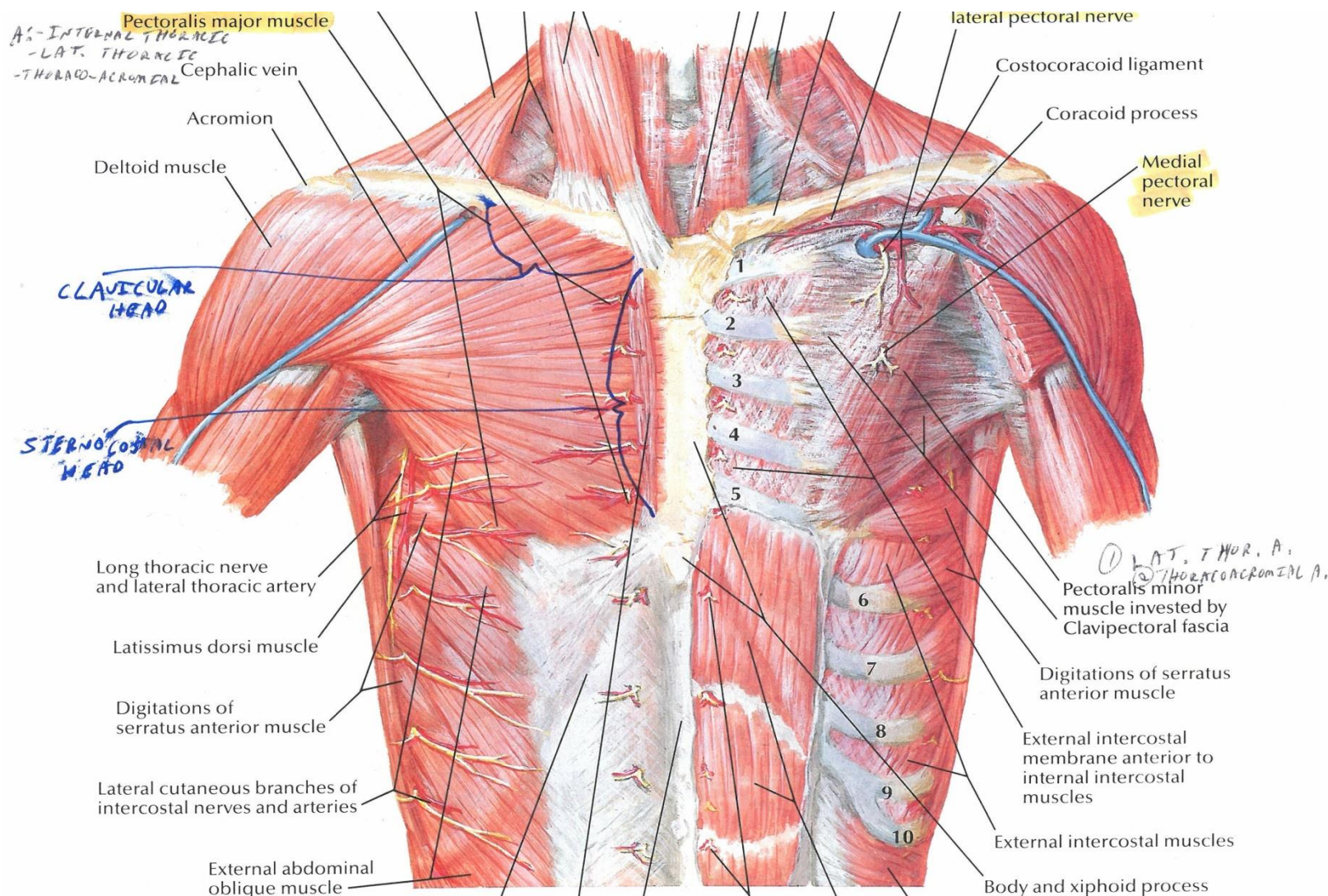


Axillary Lymph Nodes: Anterior View



B Anterior view.

Anterior Thoracic Wall



Chest Muscles



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- Pectoralis Major
- Pectoralis Minor
- Sternalis (Inconstant)
- Subclavicular Muscle
- External Intercostal Muscles
- Internal Intercostal Muscles
- Transversus Thoracis
- External Oblique Starting at the 5th Rib
- Serratus Anterior
- Latissimus Dorsi

Neck Muscles



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- Sternocleidomastoid
- Sternothyroid
- Sternohyoid
- Omohyoid

Nerves



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- Lateral Cutaneous Branches of Intercostal Nerves
- Intercostobrachial Nerve (Axilla)
- Long Thoracic Nerve
- Brachial Plexus

Fascia



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- Fascia intertwines all muscles, bones, ligaments, arteries, veins, nerves and lymphatics

Proposed Mechanism of Injury

Positioning of the Patient



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1. Supine, intubated and paralyzed
2. One or both arm(s) raised over the head or to 135°
3. Surgery lasts 2 – 4.5 hours
4. Wedge under the scapula may be used at times to induce further thoracic convexity
5. Ribs may “lock” into an inhaled position

What are the steps of the counterstrain basic treatment sequence?



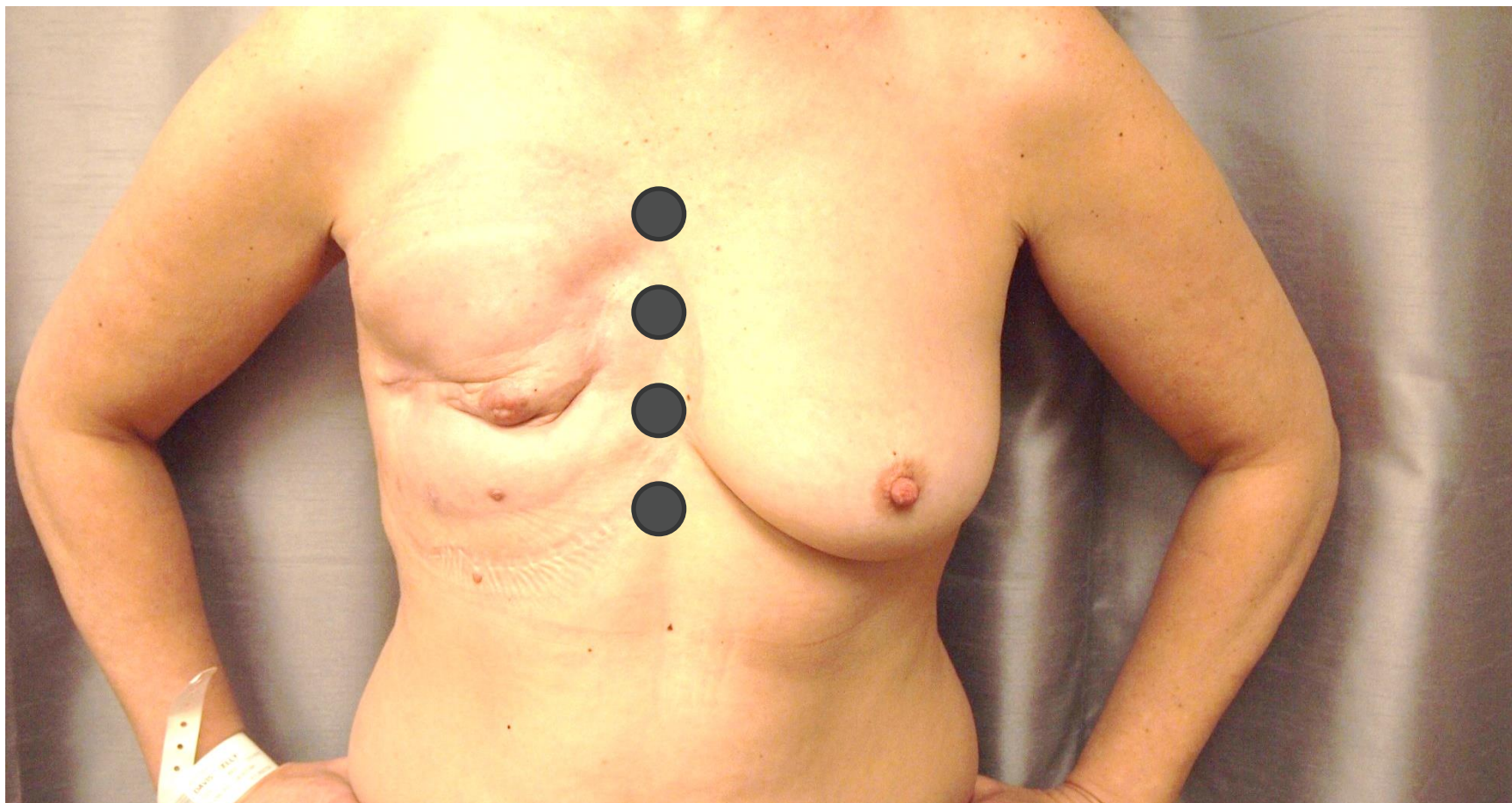
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1. Identify tender point.
2. Establish tenderness scale.
3. Monitor and retest.
4. Position to eliminate tenderness.
5. Maintain position 90 seconds.
6. Slowly return to starting position.
7. Recheck tender point.

Mastectomy

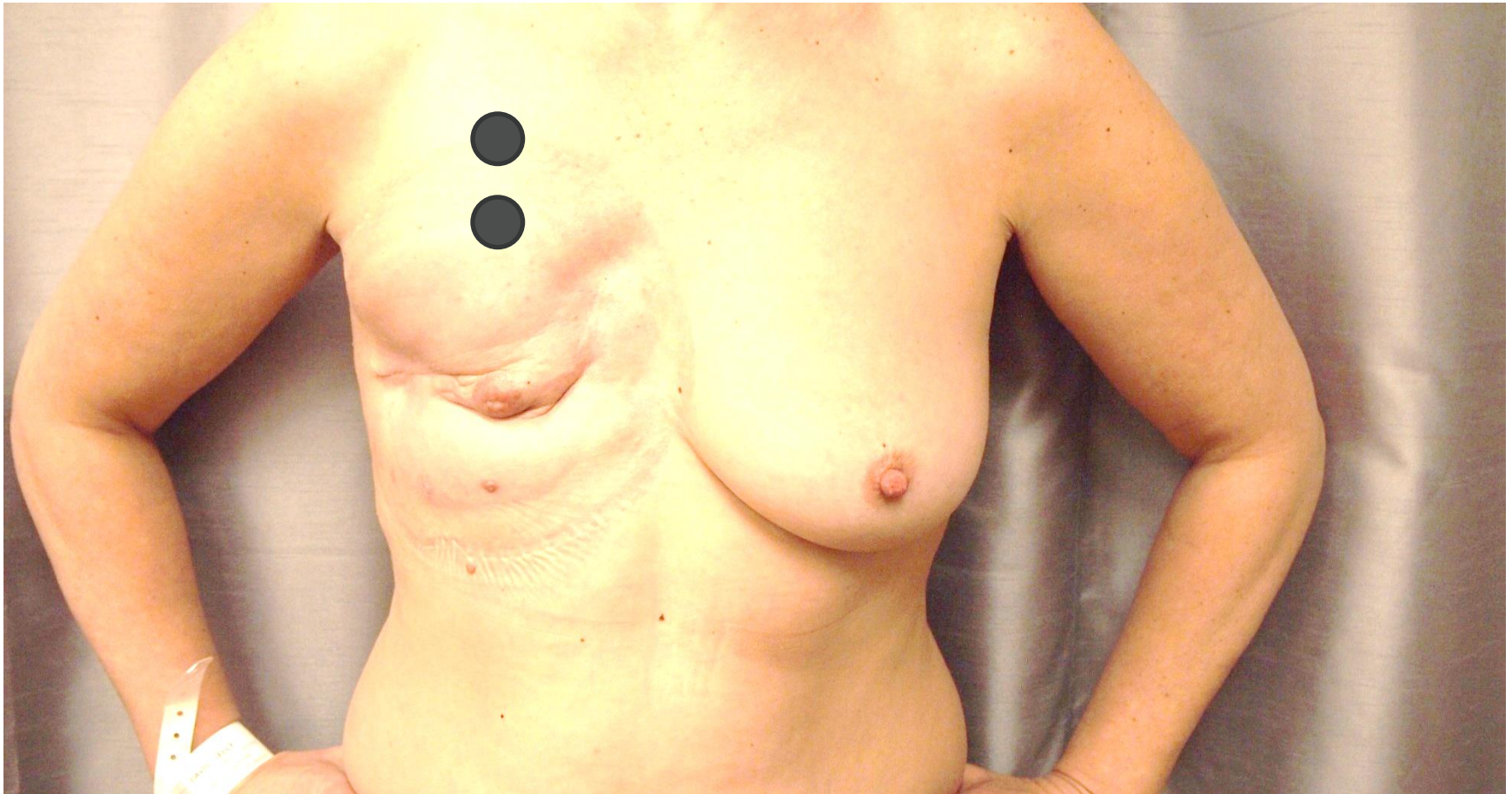


Sternal Tender Points



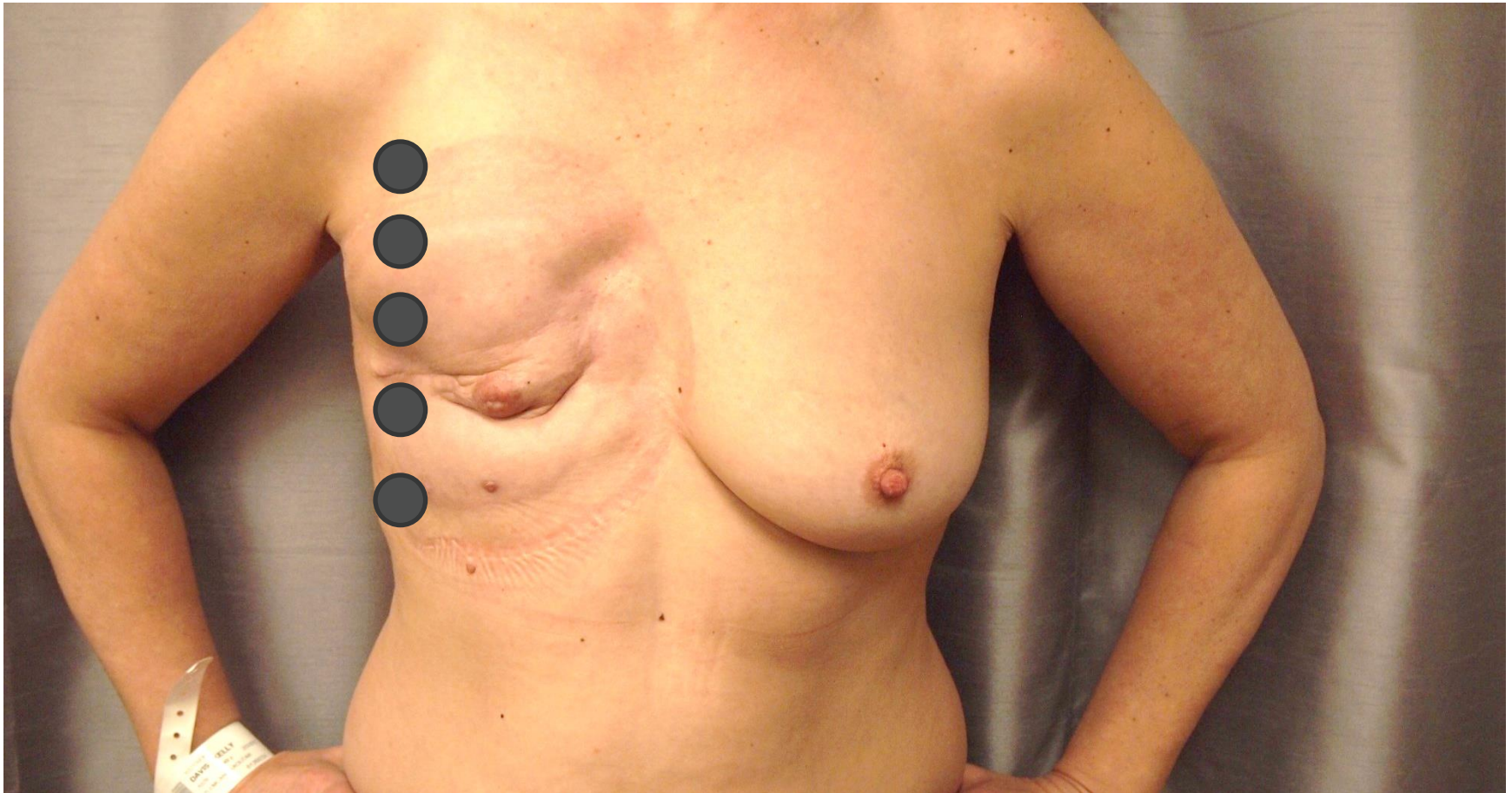
Midclavicular Tender Points

Ribs 2 & 3



Anterior Axillary Tender Points

Ribs 3,4,5,6 and 7



What are some relative contraindications for counterstrain?



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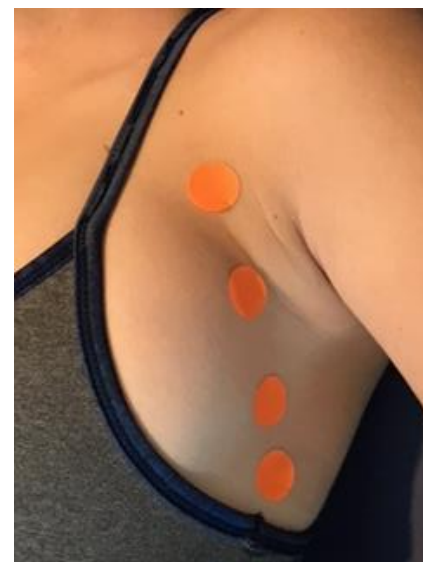
- Patient can't voluntarily relax
- Patient is severely ill
- Vertebral artery disease
- Severe osteoporosis

What do we do?

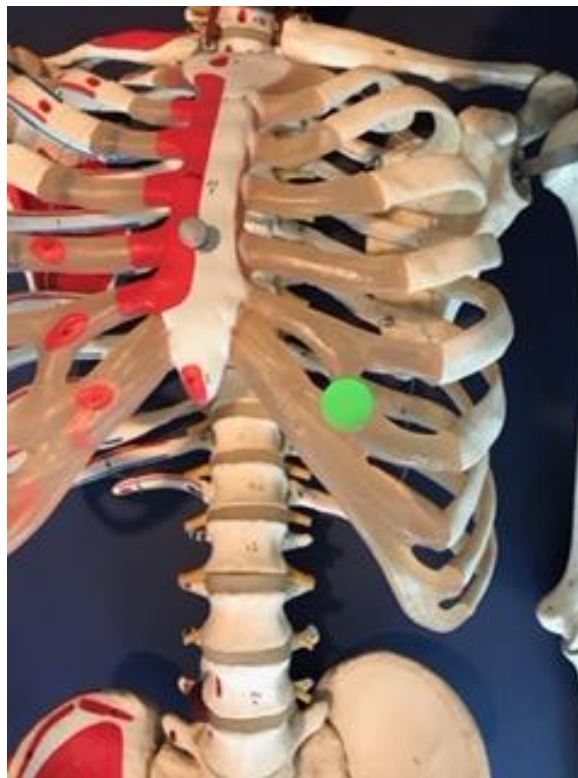


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- Instruct the patient to breathe deeply in through their nose, exhale through their mouth.
- Place the patient supine in order to evaluate the chest wall, with knees comfortably bent.







Breast Cancer Lesions



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Staging Breast Cancer Criteria



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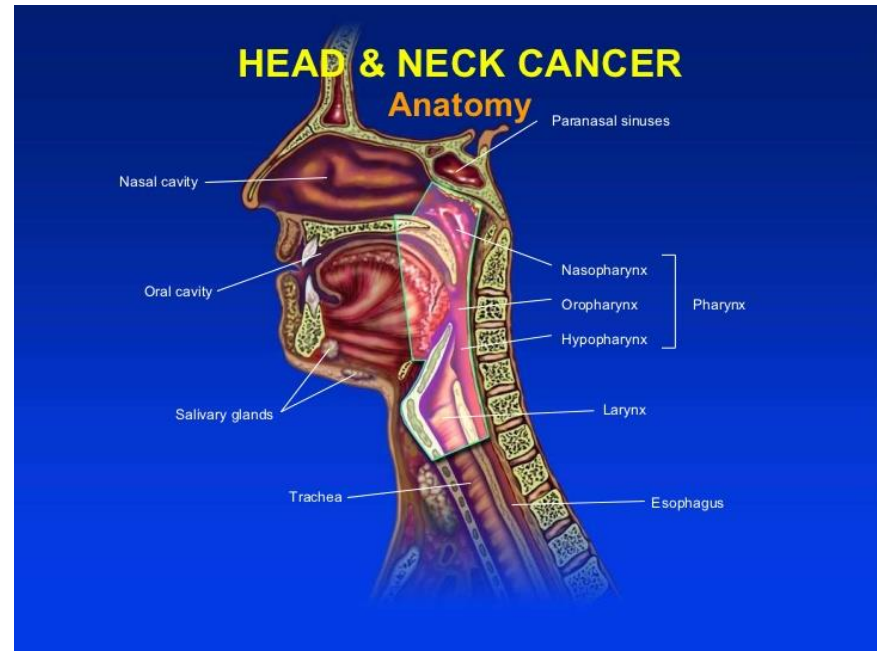
- **Stage 0 (non-invasive carcinoma in situ) breast cancer**
 - In stage 0, there is no evidence of cancer cells breaking out of the part of the breast in which they started, or of getting through to or invading neighboring normal tissue.
- **Stage I breast cancer**
 - In stage I, the tumor measures up to two centimeters and no lymph nodes are involved.
- **Stage II breast cancer**
 - In stage II, the tumor measures between two to five centimeters, or the cancer has spread to the lymph nodes under the arm on the same side as the breast cancer.
- **Stage III locally advanced breast cancer**
 - In stage III, the tumor in the breast is more than two inches in diameter across and the cancer is extensive in the underarm lymph nodes, or has spread to other lymph nodes or tissues near the breast.
- **Stage IV (metastatic) breast cancer**
 - In stage IV, the cancer has spread beyond the breast, underarm and internal mammary lymph nodes to other parts of the body near to or distant from the breast.
- **Recurrent breast cancer**
 - In recurrent breast cancer, the disease has returned in spite of the initial treatment.



Common types of Head and Neck Cancer

- Hypopharyngeal cancer
- Nasal cavity and paranasal sinus cancer
- Nasopharyngeal cancer
- Salivary gland cancer
- Oral cancer
- Oropharyngeal cancer

Get more neck cancer types.



Picture courtesy of: European School of Oncology, published in: Health & Medicine 9.12.11

Head & Neck Risk factors for Cancer



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- Tobacco
- Alcohol
- Gender
- Age
- Certain illnesses: (Epstein-Barr virus (EBV), human papillomavirus (HPV) and two inherited genetic syndromes—Fanconi anemia and dyskeratosis congenita—have been linked to head and neck)
- Sun exposure
- Radiation therapy
- Nutrition
- Vaping

Source: Cancer.net (ASCO Patient Information Website)

Head and neck cancer scenario #1



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A 63-year old woman is evaluated for a 1-month history of a painful lump underneath the tongue. She has a 45-pack-year smoking history and continues to smoke.

On physical examination, vital signs are normal. An ulcerated lesion measuring approximately 1 cm is seen on the anterior floor of the mouth.

The lesion is resected. Pathology specimens identify poorly differentiated squamous cell carcinoma with negative margins.

The patient is encouraged to stop smoking. Following discussion of the benefits and risks, she is enrolled in a lung cancer screening program utilizing low-dose CT scanning

Head and neck cancer scenario #1 (continued):



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Which of the following surveillance tests should also be recommended for this patient?

- A. CT scans
- B. PET/CT scan
- C. Oral examinations and direct laryngoscopy
- D. No additional follow-up

Posttreatment surveillance of patients with head and neck cancer should be directed toward development of both locally recurrent cancer and a second primary cancer at a more distant site.

Philosophy and Mechanical Principles of Osteopathy by AT Still



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“What bone would you pull when treating whooping-cough?”

My answer would be: “The bones that hold by attachment the muscles of the hyoid system in such irritable condition, beginning with the atlas and terminating with the sacrum.”



FIRST LESSON IN OSTEOPATHY

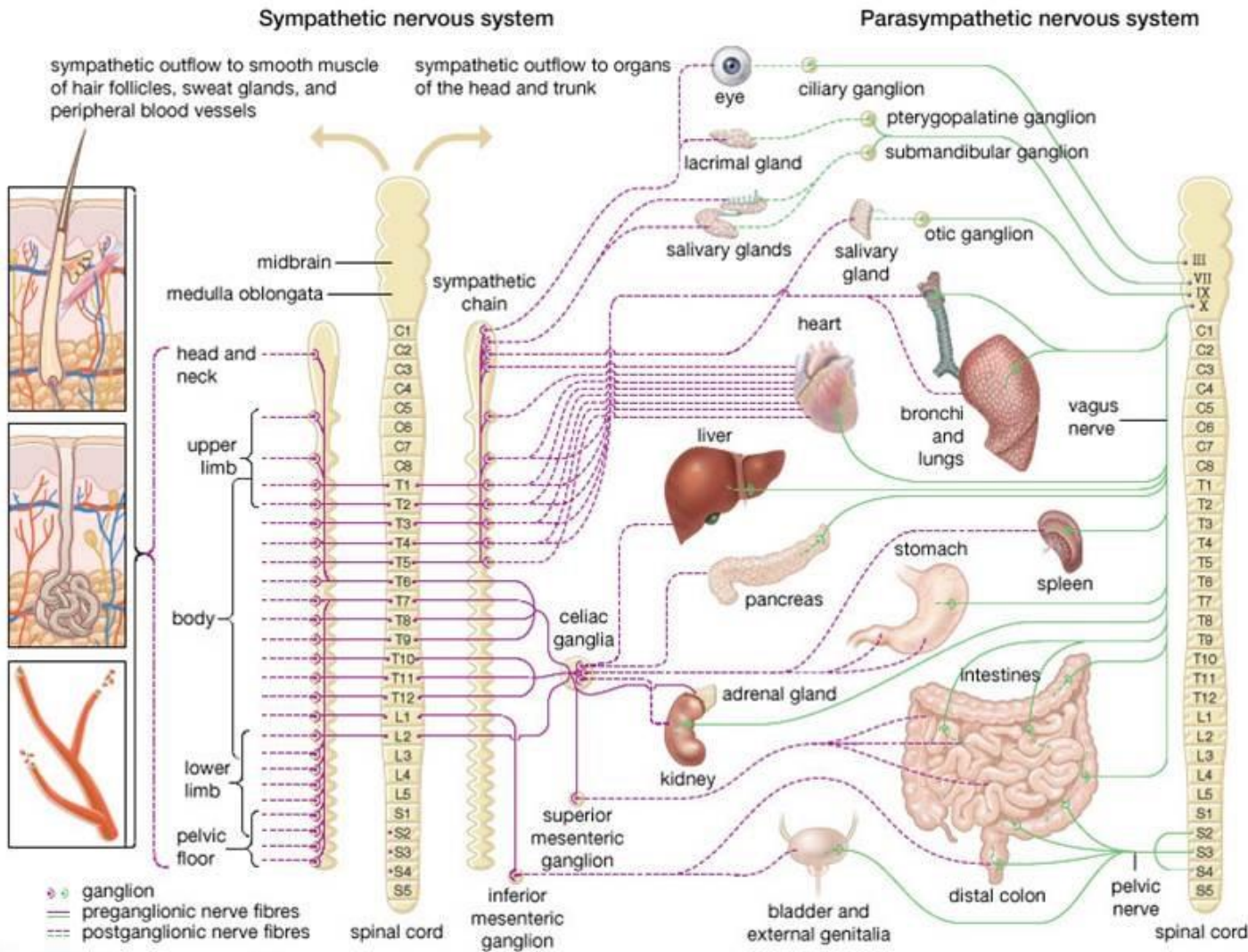
The Rule of the Artery is Supreme



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- When blood and lymphatics flow freely, the tissues can perform their physiologic functions without impedance.
- With the occurrence of trauma (physical or emotional), the tissues contract, twist and compress. The fluid flow becomes obstructed.
- Micro-climates of underperfusion result and are considered to be a significant contributor to the onset of disease.
- Releasing fascial obstructions allows for the unrestricted reprofusion and restoration of chronic injuries.

The Nervous Systems



Sympathetic Nervous System “Fight or Flight”



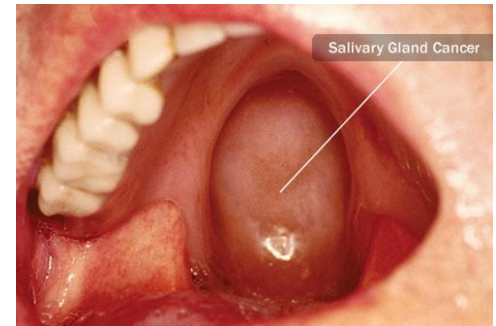
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Parasympathetic Nervous System “Rest and Digest”



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Head and Neck Lesions



Picture courtesy of: www.reconfaceindia.com/malignant-and-benign-tumors-of-head-neck/

Head & Neck Cancer Staging Criteria



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Staging describes where a cancer is located, or where it has spread, and whether it is affecting other parts of the body. The TNM system is the staging system used by doctors.

- Tumor (T): How large is the primary tumor? Where is it located
- Node (N): Has the tumor spread to the lymph nodes? If so, where and how many?
- Metastasis: Has the cancer metastasized to other parts of the body? If so, where and how much?
- **Tumor** – “T” plus a letter or number (0 – 4) is used to describe size and location of tumor. Some stages are also divided into smaller groups that describe the tumor in more detail.
 - **TX:** The primary tumor cannot be evaluated.
 - **T0 (T plus zero):** No evidence of a tumor is found.
 - **Tis:** Describes a stage called carcinoma (cancer) in situ. This is a very early cancer where cancer cells are found only in 1 layer of tissue.
 - **T1:** The tumor is 2 centimeters (cm) at its greatest dimension.
 - **T2:** The tumor is larger than 2 cm but not larger than 4 cm.
 - **T3:** The tumor is larger than 4 cm.
 - **T4a (lip):** The tumor began on the lip but has invaded adjacent tissue, such as the bone floor of the mouth or the skin of the face.
 - **T4a (oral cavity):** The tumor has invaded through the cortical bone deep into structures in the mouth, such as the muscle of the tongue or into the sinuses.
 - **T4a (oropharynx):** The tumor has spread to the larynx, tongue, or jawbone.
 - **T4b (oral cavity):** The tumor has invaded the base of the skull and/or encases the internal arteries.
 - **T4b (oropharynx):** The tumor has spread into the nasopharynx, skull base, or nearby arteries and muscles.

Source: Cancer.net (ASCO Patient Information Website)

Head & Neck Cancer Staging Criteria (Continued)



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- **Node (N)** The “N” in the TNM staging system stands for lymph nodes. These tiny, bean-shaped organs help fight infection. Lymph nodes near where the cancer started are called regional lymph nodes. Lymph nodes in other parts of the body are called distant lymph nodes. There are many lymph nodes in the head and neck area. Careful assessment of lymph nodes is an important part of staging.
 - **NX:** The regional lymph nodes cannot be evaluated.
 - **N0 (N plus zero):** There is no evidence of cancer in the regional lymph nodes.
 - **N1:** The cancer has spread to a single lymph node on the same side as the primary tumor, and the cancer found in the node is 3 cm or smaller.
 - **N2a:** Cancer has spread to a single lymph node on the same side as the primary tumor and is larger than 3 cm but not larger than 6 cm.
 - **N2b:** Cancer has spread to more than 1 lymph node on the same side as the primary tumor, and none measure larger than 6 cm.
 - **N2c:** Cancer has spread to more than 1 lymph node on either side of the body, and none measure larger than 6 cm.
 - **N3:** The cancer found in the lymph nodes and is larger than 6 cm.

- **Metastasis (M)** The “M” in the TNM system indicates whether the cancer has spread to other parts of the body, called distant metastasis.
 - **MX:** Distant metastasis cannot be evaluated.
 - **M0 (M plus zero):** Cancer has not spread to other parts of the body.
 - **M1:** Cancer has spread to other parts of the body.

Source: Cancer.net (ASCO Patient Information Website)

Do you want to keep this instead of previous slides?

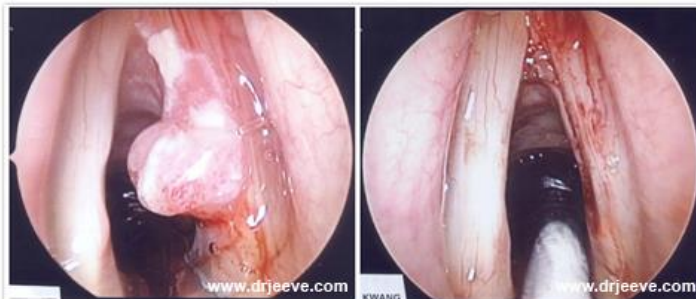


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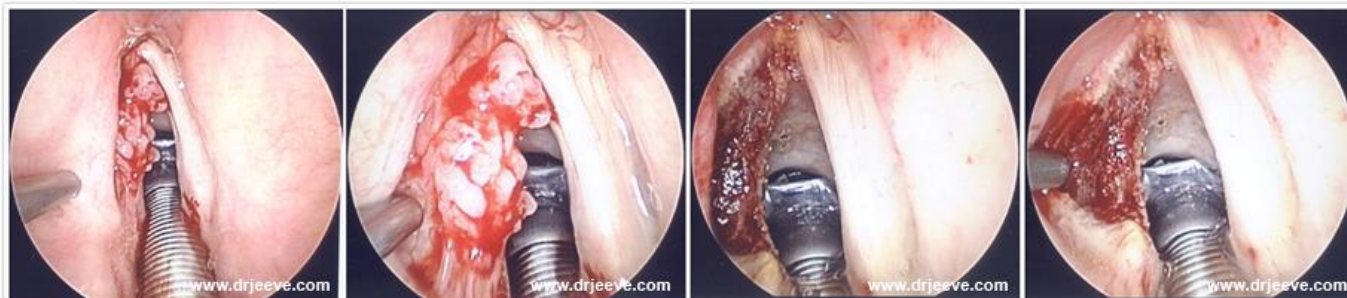
- **Stage 0 head and neck cancer**
 - At stage 0, the tumor is only growing in the part of the head and neck where it started. No cancer cells are present in deeper layers of tissue, nearby structures, lymph nodes or distant sites (e.g., Tis, N0, M0 Carcinoma in situ).
- **Stage I head and neck cancer**
 - At stage 1, the primary tumor is 2 cm across or smaller, and no cancer cells are present in nearby structures, lymph nodes or distant sites (e.g., T1, N0, M0).
- **Stage II head and neck cancer**
 - At stage II, the head and neck tumor measures 2-4 cm across, and no cancer cells are present in nearby structures, lymph nodes or distant sites (e.g., T2, N0, M0).
- **Stage III head and neck cancer**
 - At stage III, the tumor fits one of the following criteria:
 - It is larger than 4 cm across, and no cancer cells are present in nearby structures, lymph nodes or distant sites (e.g., T3, N0, M0).
 - It is any size but has not grown into nearby structures or distant sites. However, cancer cells are present in one lymph node, which is located on the same side of the head or neck as the primary tumor and is smaller than 3 cm across (e.g., T1-3, N1, M0).
- **Stage IV head and neck cancer**
 - **Stage IVA:** One of the following applies:
 - **T4a, N0 or N1, M0:** The head and neck cancer tumor is any size and is growing into nearby structures.
 - **T1-4a, N2, M0:** The tumor is any size and may or may not have invaded nearby structures. It has not spread to distant sites

Source: Cancer.net (ASCO Patient Information Website)

Surgery



► An invasive cancer of the larynx with surrounding pre-cancerous changes (or dysplasia). This was removed in entirety



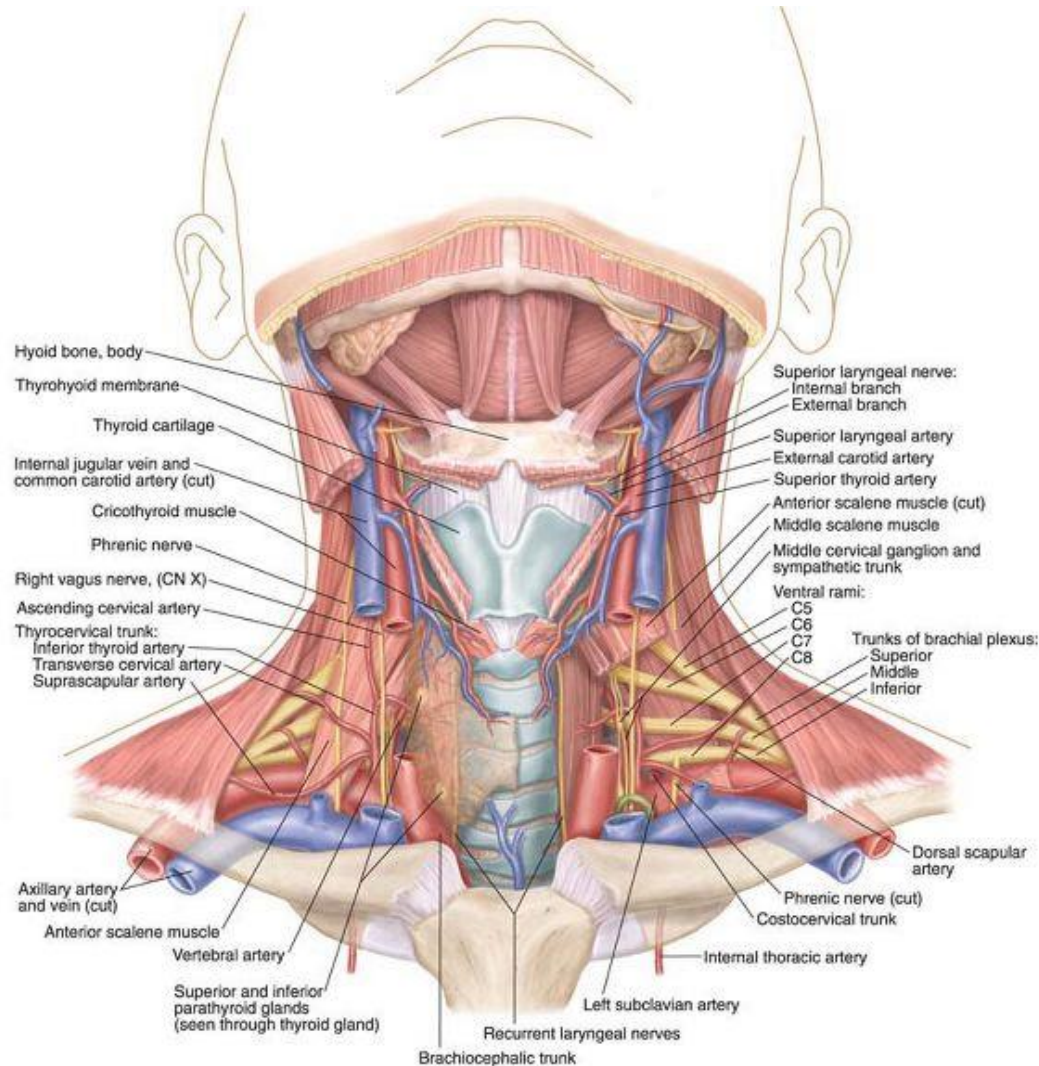
► A cancer arising from the left vocal cord. This was removed by laser

Pain in the **Throat** following Surgical Trauma

S/P Intubation – Hyoid Bone Dysfunction

S/P Thyroidectomy – Recurrent Laryngeal Nerve Dysfunction

Anatomy of the Neck



Source: Netter

Birth Stages:

Engagement, Descent, Rotation, Extension,
Restitution

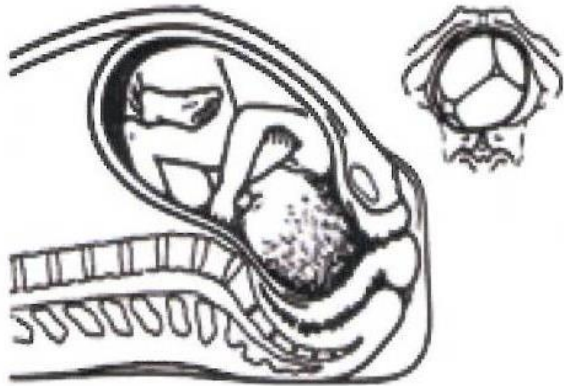


Fig. 8. Engagement with Flexion.

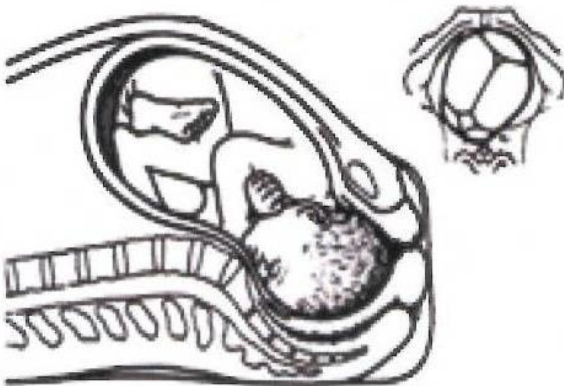


Fig. 9. Descent and Beginning Rotation.

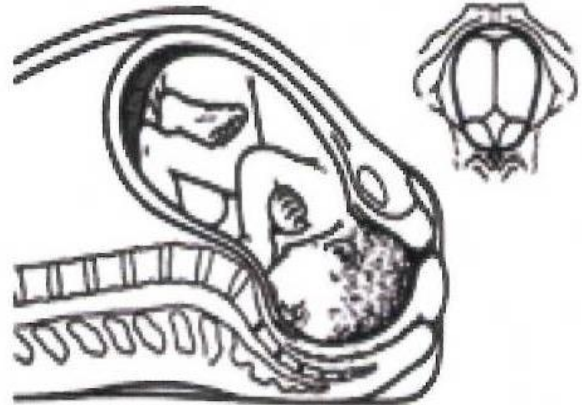


Fig. 10. Complete Rotation and beginning Extension.

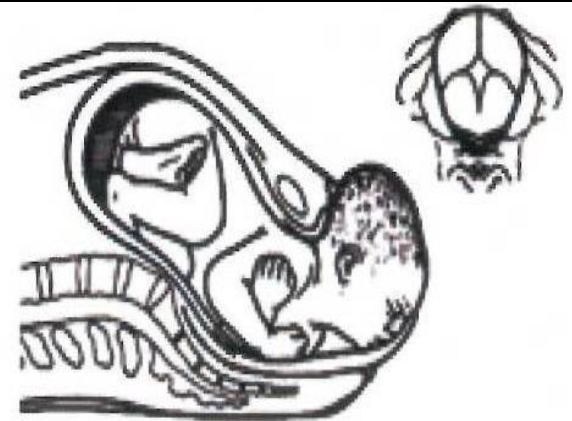
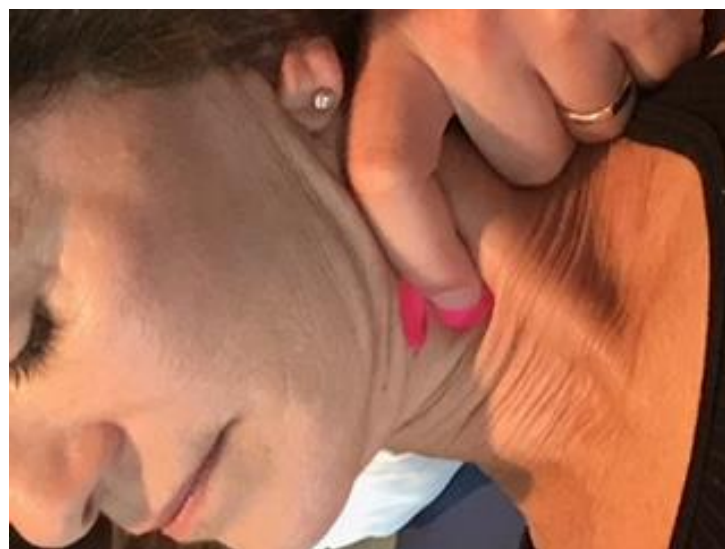
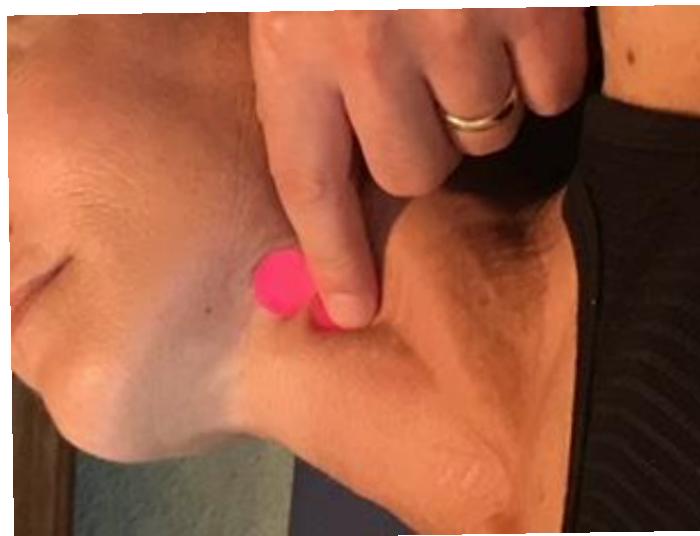
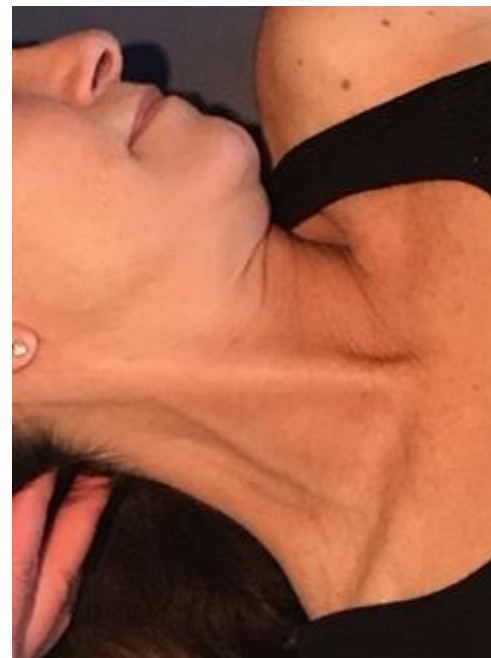
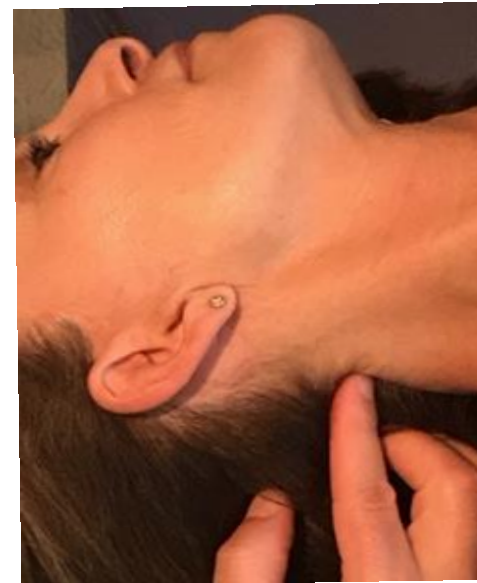


Fig. 11. Complete Extension.



Fig. 12. Restitution.

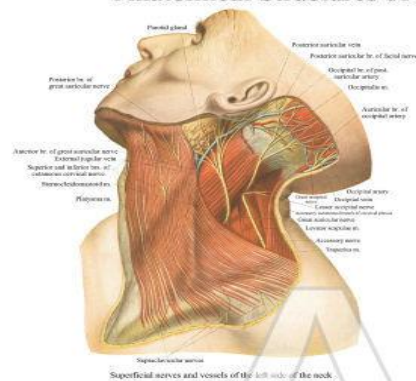




Eval vocal chords

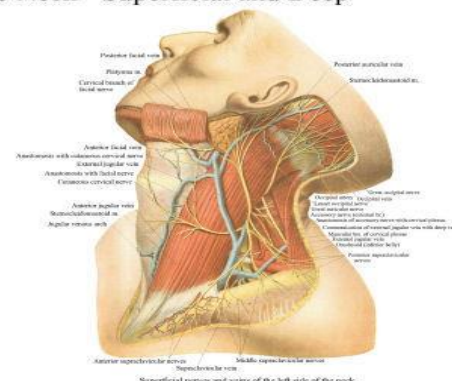


Anatomical Structures of the Neck - Superficial and Deep

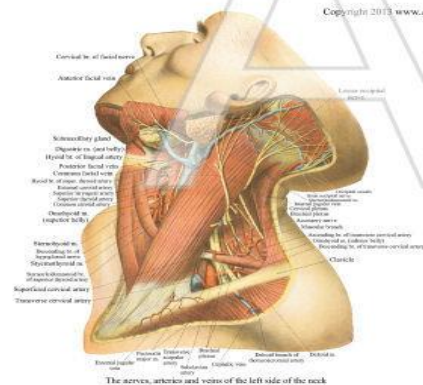


Superficial nerves and vessels of the left side of the neck

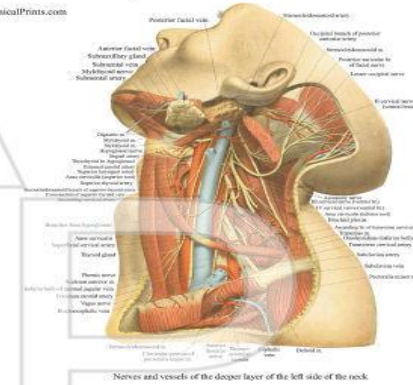
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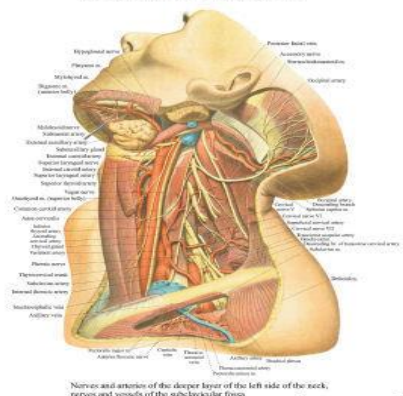
Superficial nerves and vessels of the left side of the neck



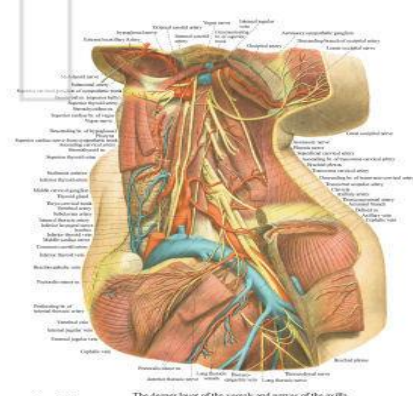
The nerves, arteries and veins of the left side of the neck



Nerves and vessels of the deeper layer of the left side of the neck



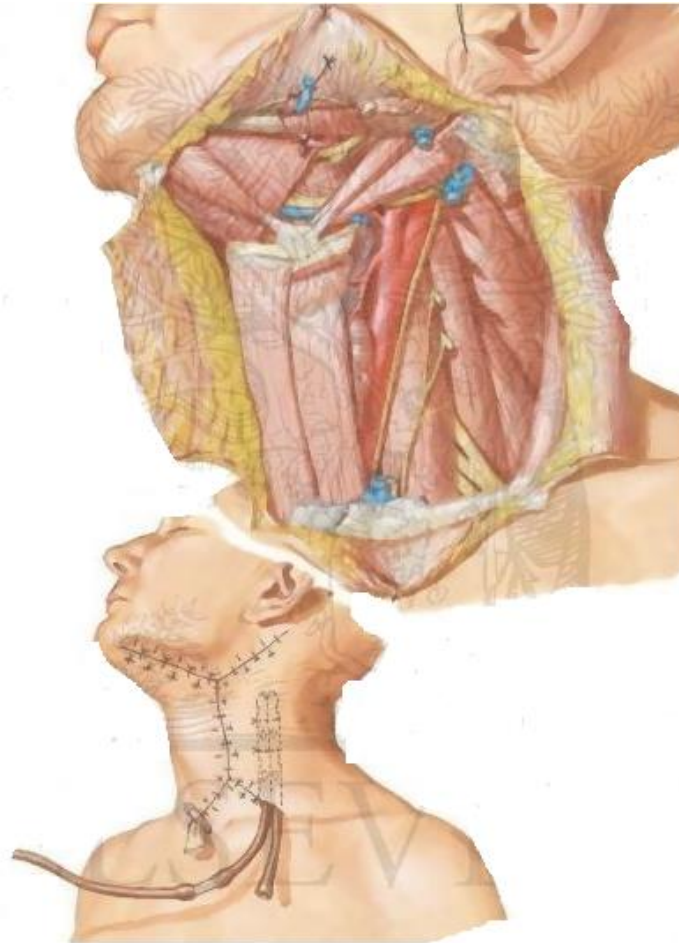
Nerves and arteries of the deeper layer of the left side of the neck, viewed from the front



The deeper layer of the vessels and nerves of the left side of the neck

Image Copyright www.AnatomicalPrints.com

Radical Neck Resection



Source: Netter

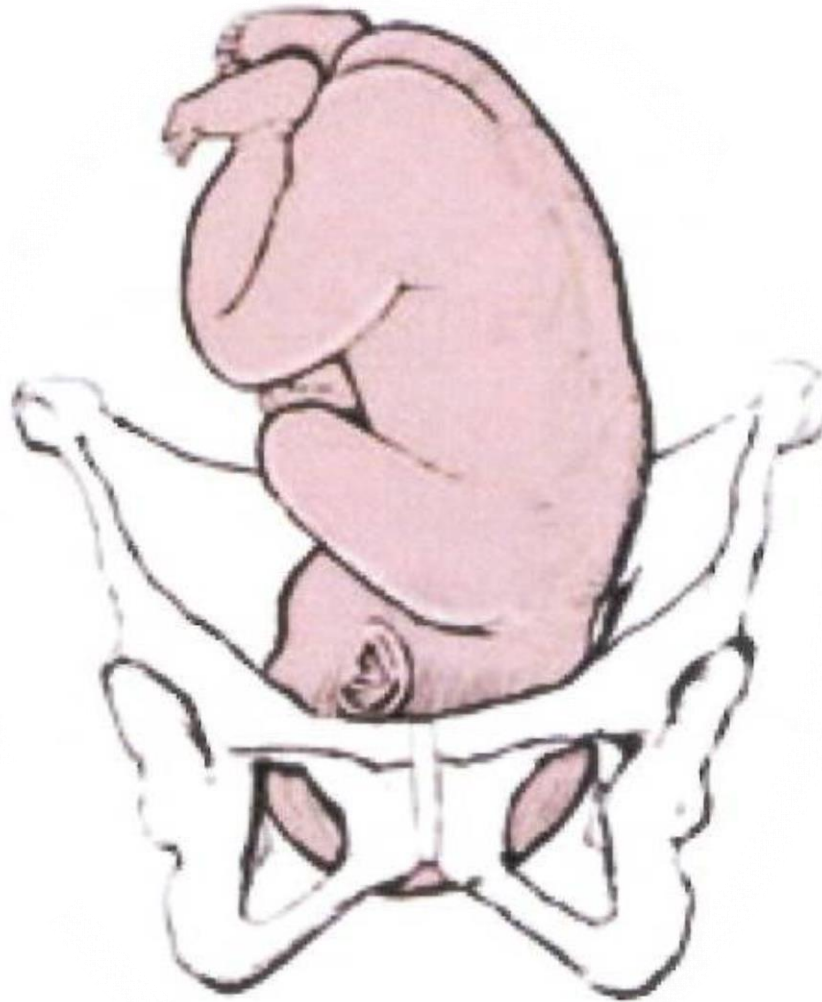
Contra-indications



Winning the fight against cancer, every day.®

- What to do if?
- What not to do if?

Birth Trauma



Colon Cancer



Winning the fight against cancer, every day.®

- **Types of Colon Cancer:**

- Colorectal Adenocarcinoma
 - "Adeno" is a prefix meaning glands. "Carcinoma" is a type of cancer that grows in epithelial cells that line the surfaces inside and outside the body. Colorectal adenocarcinomas develop in the lining of the colon or rectum, which make up the large intestine. They tend to start in the inner lining and then spread to other layers.
- Gastrointestinal Carcinoid Tumors
 - Carcinoid tumors develop in nerve cells called neuroendocrine cells, which help regulate hormone production. These tumors are among a group of cancers called neuroendocrine tumors (NETs). Carcinoid tumors cells are slow-growing and may develop in the lungs and/or gastrointestinal tract. They account for 1 percent of all colorectal cancers and half of all cancers found in the small intestine.
- Metastatic Colorectal Cancer
 - Cancer cells may break away from a tumor in the colon or rectum and spread to other parts of the body through the bloodstream or lymphatic system. These cells may settle and form new tumors on a different organ.
 - The most common site of metastases for colon or rectal cancer is the liver. Colorectal cancer cells may also spread to the lungs, bones, brain or spinal cord.
- Other Colorectal Cancers:
 - Primary colorectal lymphomas
 - Gastrointestinal stromal tumors
 - Leiomyosarcomas
 - Melanomas

Source: Cancer.net (ASCO Patient Information Website)

Colon cancer scenario #1



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A 61-year old woman undergoes routine follow-up evaluation. Stage II colon cancer was diagnosed 3 years ago and was treated with surgical resection. The patient now feels well. She works full time and exercises regularly. Medical history is otherwise unremarkable, and she takes no medications.

Findings on physical examination, including vital signs, are normal.

Routine surveillance CT scans of the chest and abdomen show three new hypodense lesions in the right lobe of the liver, ranging in size from 1 to 3 cm. No other abnormalities are seen.

Colon cancer scenario #1 (continued):



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Which of the following is the most appropriate management?

- A. CT-guided needle biopsy of a liver lesion
- B. Hepatic artery embolization
- C. Palliative systemic chemotherapy
- D. Radiation therapy to the liver
- E. Right hepatectomy

The development of oligometastatic disease (usually to the liver or lung) in a patient who previously was treated for colorectal cancer is potentially curable by surgical resection.

Colon cancer scenario #2



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A 77-year old woman is evaluated for the new-onset fatigue and anemia. She otherwise feels well. Medical history is unremarkable, and she takes no medications.

Physical examination findings, including vital signs, are normal. BMI is 22.

Colonoscopy identifies a 7-cm mass in the transverse colon. Biopsy of the mass shows poorly differentiated adenocarcinoma. Contrast-enhanced CT scans of the chest, abdomen, and pelvis show the mass, but no other abnormalities are identified.

Colon cancer scenario #2



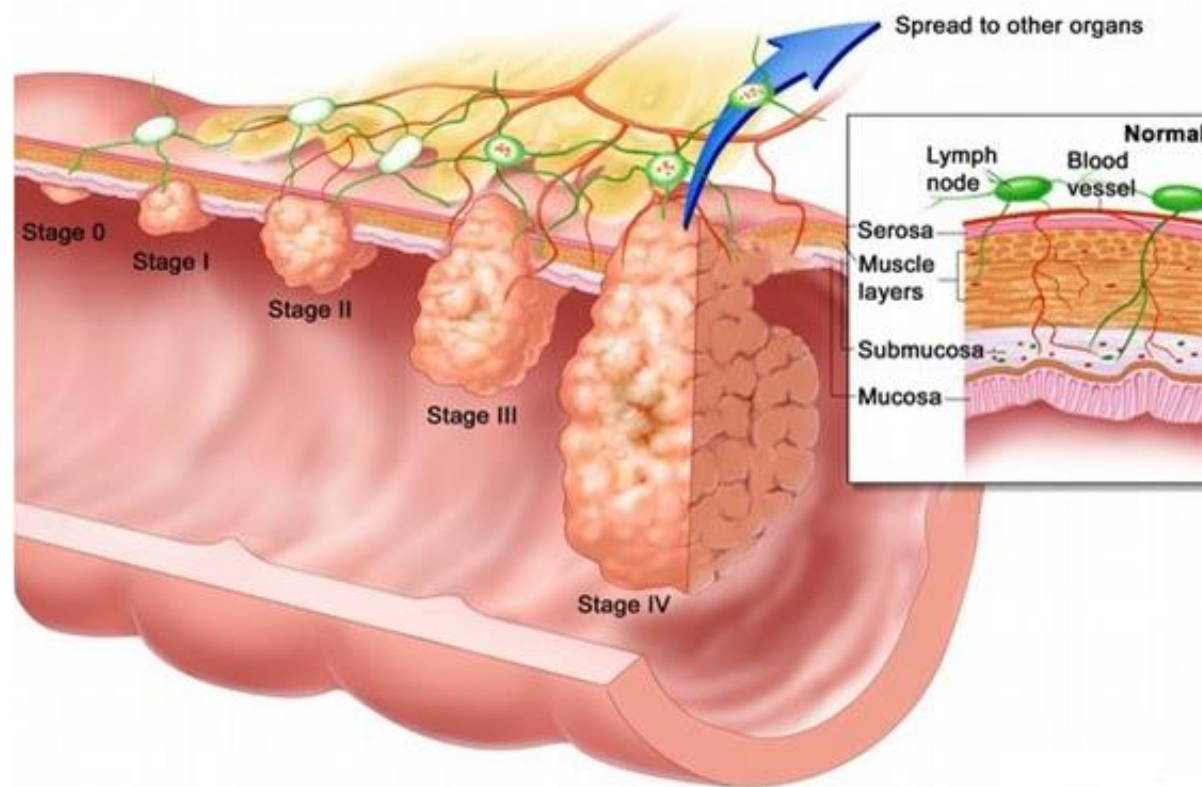
Winning the fight against cancer, every day.®

Which of the following is likely to be the most important factor in determining this patient's prognosis?

- A. Degree of differentiation of the tumor
- B. Patient's performance status
- C. Size of the tumor
- D. Stage of the tumor

Tumor stage is usually the most important prognostic factor in determining outcome in a patient with newly diagnosed cancer.

Colon Cancer Lesions



Picture Courtesy of: Amiscus Visual Solutions

Staging Colon Cancer Criteria



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- **Stage 0 colorectal cancer**
 - This is called cancer in situ. The cancer cells are only in the mucosa, or the inner lining of the colon or rectum
- **Stage I colorectal cancer**
 - The cancer has grown through the mucosa and has invaded the muscular layer of the colon or rectum. It has not spread into nearby tissue or lymph nodes.
- **Stage IIA colorectal cancer**
 - The cancer has grown through the wall of the colon or rectum and has not spread to nearby tissue or to the nearby lymph nodes.
- **Stage IIB colorectal cancer**
 - The cancer has grown through the layers of the muscle to the lining of the abdomen, called the visceral peritoneum. It has not spread to the nearby lymph nodes or elsewhere.
- **Stage IIC colorectal cancer**
 - The tumor has spread through the wall of the colon or rectum and has grown into nearby structures. It has not spread to the nearby lymph nodes or elsewhere.
- **Stage IIIA colorectal cancer**
 - The cancer has grown through the inner lining or into the muscle layers of the intestine and spread to 1 to 3 lymph nodes or to a nodule of tumor in tissues around the colon or rectum that do not appear to be lymph nodes but has not spread to other parts of the body.
- **Stage IIIB colorectal cancer**
 - The cancer has grown through the bowel wall or to surrounding organs and into 1 to 3 lymph nodes or to a nodule of tumor in tissues around the colon or rectum that do not appear to be lymph nodes. It has not spread to other parts of the body.

Source: Cancer.net (ASCO Patient Information Website)

Pain in the **Abdomen** following Surgical Trauma

S/P Cholecystectomy – Hepatic Capsule Pain – Right Shoulder Pain

S/P Appendectomy

S/P Laparotomy

S/P Splenectomy

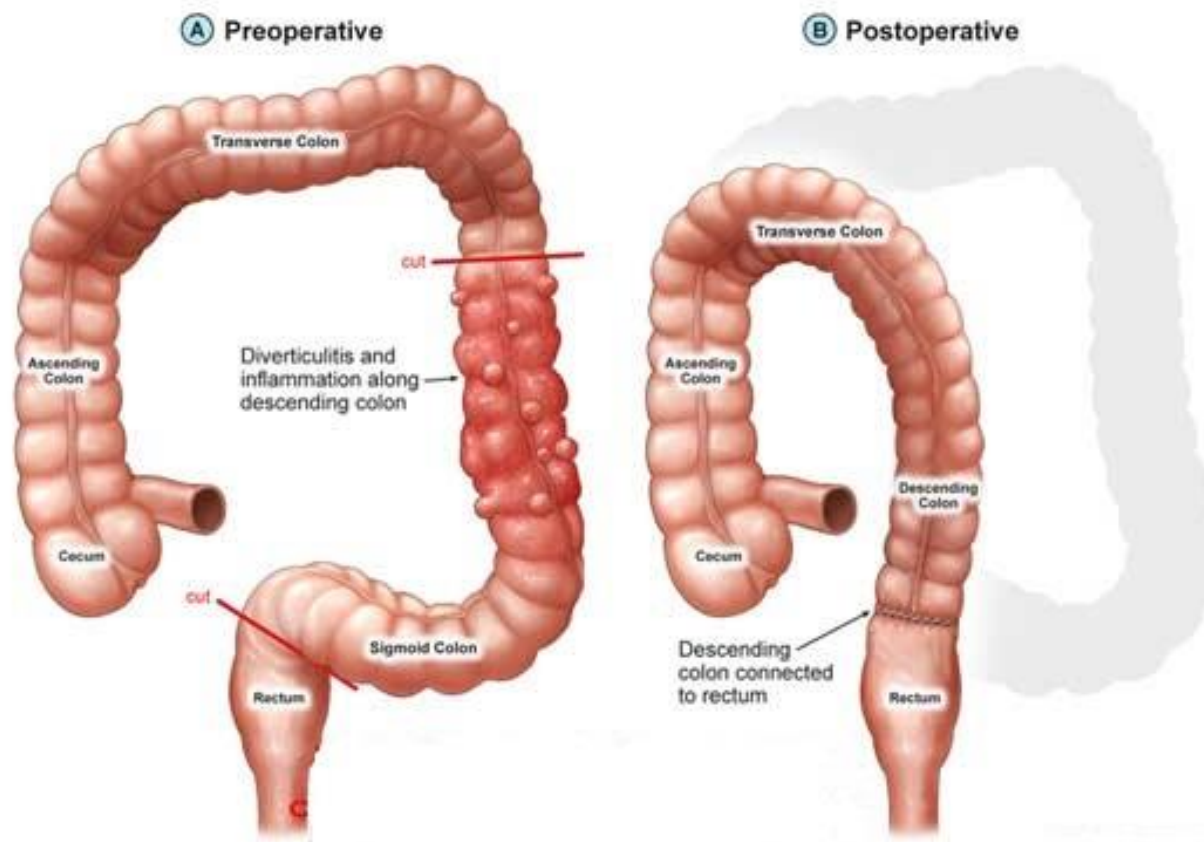
S/P Heartbreak?

For patients with metastatic colorectal cancer, the sidedness of the primary tumor within the colon appears to affect both survival and the effectiveness of commonly used biological agents Avastin (bevacizumab) and Erbitux (cetuximab), which are designed to interfere with the formation of blood vessels that feed a tumor, and with growth factor receptor signaling. Patients with left-sided disease enjoyed a median overall survival of 33 months compared with a 19.4 months in right-sided disease. And a comparison of Avastin and Erbitux showed that Erbitux might actually be harmful to patients with right-sided tumors.

Source: Curetoday.com

Colon Resection

Correct Colon Resection



Picture Courtesy of: Amicus Visual Solutions

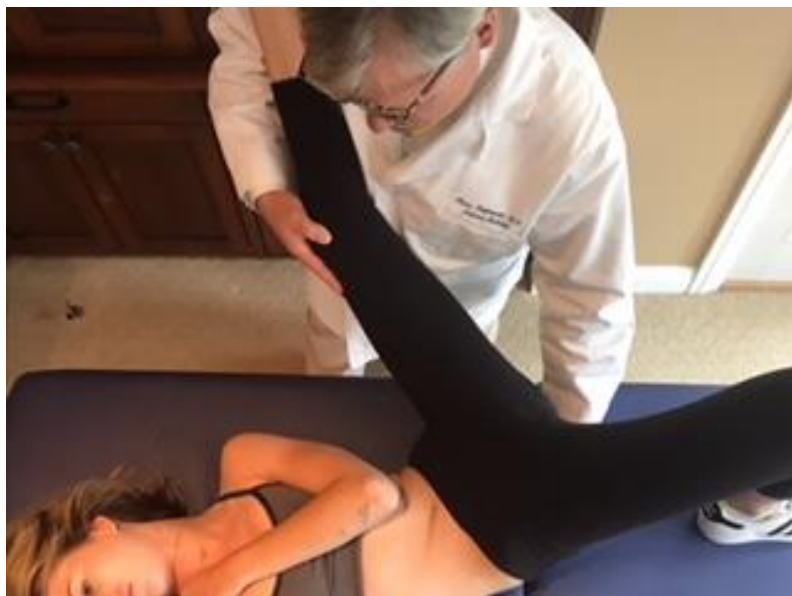


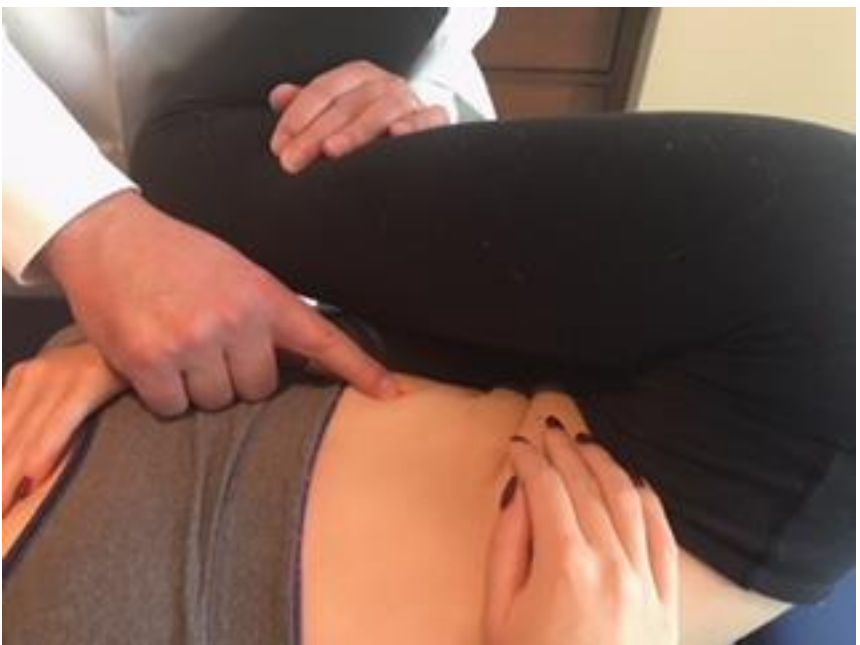
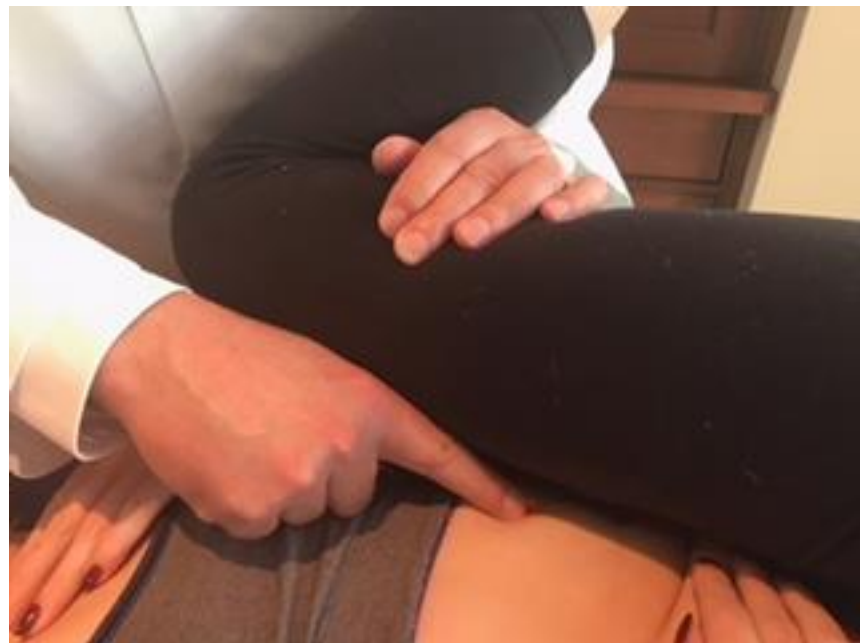




Add L1 – 5 on
above pic







Philosophy and Mechanical Principles of Osteopathy by AT Still



Winning the fight against cancer, every day.®

“We cure these diseases by subduing the cause that has produced such alarming effects as angry ulcers, cancers, tumors, and all diseases that assail woman. We must apply our mental and physical energies to the place in the spine controlling the blood-supply sustaining the life and health of the womb, the bladder, kidneys, liver, spleen, pancreas, lymphatics, and all parts of abdominal life.”

(Ch.VIII, The Abdomen)

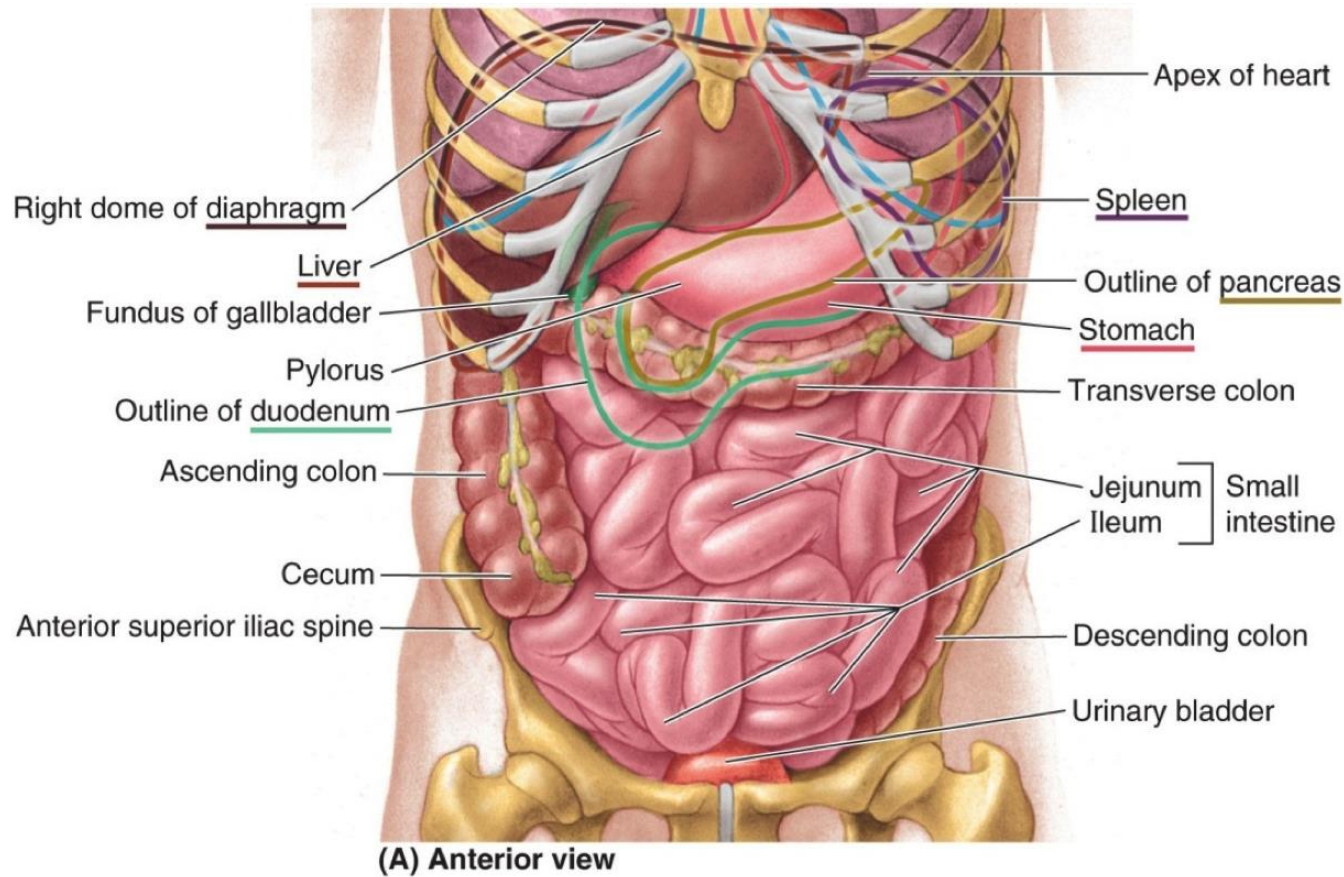
Contra-indications



Winning the fight against cancer, every day.®

- What to do if?
- What not to do if?

Abdominal Visceral Anatomy



Become the champion of the patient's social history

– they will love you for it.

Traditional: Smoking/ETOH/Illicits etc.

Have fun – 10 minutes will change their lives. It lets them know that you care.

“Tell me about yourself.”

- Favorite color?
- Favorite food?
- Religion?
- Children's name?
- Spouse's name and how they met?
- How do you like to be addressed?
- Hobbies?
- What is your career?
- What are you famous for?
- Do you have a fondest or funniest memory?
- Imagine your perfect day: Where would you be and who would you be with?

Philosophy and Mechanical Principles of Osteopathy by AT Still



Winning the fight against cancer, every day.®

The soul of man,
with all the streams of pure living water,
seems to dwell in the fascia of his body.

Philosophy and Mechanical Principles of Osteopathy by *AT Still*



Winning the fight against cancer, every day.®

“Life is in danger,
and can be saved by skill,
not by force and ignorance.”

(Ch.VI, The Thorax)

Philosophy and Mechanical Principles of Osteopathy by *AT Still*



Winning the fight against cancer, every day.®

The osteopathic surgeon uses “the knife of blood” to keep out “the knife of steel,” and saves life by saving the injured or diseased limbs and organs from the body by reduction, in place of removing them.

Great Books



Winning the fight against cancer, every day.®

By Andrew Taylor Still

- *Autobiography of A. T. Still* (1897)
- *Philosophy of Osteopathy* (1899)
- *The Philosophy and Mechanical Principles of Osteopathy* (1902)
- *Osteopathy, Research and Practice* (1910)

By John Lewis

- *A. T. Still: From the Dry Bone to the Living Man* (2014)

Current Good Reads



Winning the fight against cancer, every day.®

- **Rodney Yee** - *Moving Towards Balance*
- **Kelly Turner, PhD** - *Radical Remission*
- **David R. Hawkins, PhD** - *Power vs. Force*
- **Robert Fulford, D.O., FAAO** - *Touch of Life: The healing Power of the Natural Life Force*

Osteopathy is...



Winning the fight against cancer, every day.®

“Osteopathy is a therapeutic gold mine. Many veins of high grade ore have been found, and are being worked; but others just as valuable are yet to be discovered.”

C.B. Rowlingson, DO, Editor *The Western Osteopath*