Ganglions (Ganglionic Cysts): Suton Sutures, A Treatment Methodolgy.

Dr. (Prof.) Anil K. Sahni M.S, F.I.C.S, Advanced D.H.A,
Professor Surgery, N.D.M.C Med. Coll. & Hindu Rao Hospital, Delhi-7 India
A-1/ F-1 Block – A, Dilshad Garden, Delhi-110095 India
E-Mail- dranilksahni@gmail.com Mobile- 09873083100

ABSTRACT: Intoduction- ‘Ganglionic Cysts’, Usually Known By MisKnowmer ‘Ganglions’, A Common Clinical Entity, Needing Appropriate Management, May Occur In Different Body Regions, But Is Most Commonly Seen Around Wrist.

Materials & Method- The Present Multi-Centric Study, Performed During Last (2) Decades, Comprises Comparative OverAll Treatment Result OutCome Evaluation, Of About (100) Patients, Using Aspiration, Surgical Excision & Described “Suton Sutures” Technique.

Technique Methodology- The Discussed Management Methodolgy, Involves Placement Of (2) Horizontal & Or (1) Vertical & Horizontal Sutures (SutuPac No.1 On 3/8 Circle Cutting Needle, 60mm) In The Swelling, Compressing Out All The Oozing Gelatinous Material, From (4) Prick Points, Followed By Sterile Compression Bandage.

After About 48-72 Hours, The Remaining Cystic Contents Are Expressed Out, Facilitated By The Inward & OutWard Movement Of Sutures Through Subsiding / Subsided Swelling. Depending Upon The Swelling Status, After Repeation Of Compressing Out Cystic Cavity Contents, Sutures Are Simply Pulled Out.

Results- Performed Under Strict Aseptic Precautions, Proper Patient Compliance, With/WithOut L.A, With The Simple (2) Sutures; (4) Prick Technique, Complete Resolution Of Swelling Within 4-6 Days, Can Be Achieved In >95% Cases, WithOut Hazards & Complications Of ‘Surgical Excision’, & Much Less Recurrence Rate As Compared To ‘Aspiration’ & Other Conservative Measures, Due To Complete Evacuation Of Cystic Cavity Contents.

Conclusion- The Procedural Safety & Simplicity, Supported By Almost Negligible Complication Rate & Much Less Recurrence Rate, Retains “Suton Sutures” Technique, As An Acceptable Management Methodology, Amongst Vividly Practiced Regimes, As Per Compliance & Availability.

Key Words: 1. Ganglionic Cyst/ Ganglion (GC) 2. Aetio-Pathogenesis
3. Acute/ Chronic/ SubAcute Clinical Presentations
4. Home Remedies, Aspiration, Suton’s Sutures & Other Conservative Regimes
5. Surgical Excision- Clasical Open; Ortho-Endoscopic
6. Suton Sutures: Procedural Safety, Simplicity,
Minimal Complication & Recurrence.

Corresponding Author: Dr. (Prof.) Anil K. Sahni

INTODUCTION: ‘Ganglionic Cysts’, Usually Known By MisKnowmer ‘Ganglions’, Are Common Clinical Presentations At Different Strata Of Clinical Practice (General/Specialty/ Super-Speciality), Demanding Appropriate Management. With Occurence In Different Body Regions, GC Are Most Commonly Seen Around Wrist, As Acute & Or Chronic Manifestations.

Aetiology Of GC Remains Obscured, While Different Theories & Risk Factors Have Been Reported. Different Treatment Methods Practiced Variably, Range From Reported Exhaustive List Of Home Remedies (Hot / Cold Compressions, Cheiropody, Herbal Oils, Ointments, Piercing, Draining, Thumping, Book Method) & **Conservative Measures- Medications, Aspiration, Surgical Excision;** Classical Open & Recently Evolving Endo-Arthroscopic Techniques. **Variably Different Complications** Include, Recurrences, Life Long Morbidity Of Joint Stiffness (Pain& Restricted Mobility) Besides Infection, Rupture, Haemorrhage, Injuries To Adjoining Structures Etc.

Present Study Conducted During Last 2^{1/2} Decades, At Different WorkPlaces, Dealing With A Modified Aspiration Technique, Involves The Placement Of Dependably Strong Suture Mounted Upon Wide Tip Cutting Needle (2-Sutures; 4-Pricks; Horizontal Or Vertically), Squeezing Out The Gelatinous Contents, Through (4) Appropriately Placed, Wide Enough Prick Pints, Retaining Sutures By Sterile Dressing For Needed Next Sitzings & Simply Pulling Out The Sutures, In The Last, Avoids The Various Different Complications To A Considerable Extent, Without Causing Any Harm.

Radio-Diagnostic Guidance Techniques For Different Body Swellings Becoming Increasingly Popular With Proper Skill & Infra-Structural Availabilities, **During Last (2) Decades, Has The Supplemental Scope As Per Indicative Need. [1, 2, 3, 4, 5]**

GANGLIONIC CYST/ GANGLION: AN OVERVIEW

Ganglion Cysts Or Synovial Cyst, Bible Cyst Or Bible Bump Or "Gideon's Disease"-

Are Non-Cancerous Fluid-Filled Cysts, Under The Skin Near A Joint.

Being A Misnomer That Has Persisted Into Modern Times, The Ganglion Cyst Is Unrelated To The Neural "Ganglion" Or "Ganglion Cell".

The Etymology Traces Back To The Ancient Greek *Γάγγλιον*, A "Knot" Or "Swelling Beneath The Skin", Which Extends To The Neural Masses By Analogy.

Hippocrates Is Credited With The Description Of These Cysts, Generally,

The Term "Bible Cyst" (Or "Bible Bump") Is Derived From **An Urban Legend** That The Historical Treatment Consisted Of **Hitting The Cyst With A Bible**.

Trying To Treat The Lesion By Hitting It With A Book Is However Discouraged.

The Drastic "Histo-Pathological" Difference Between 'Ganglion' & 'Ganglionic Cyst' Can Be Evidently Discussed As Follows-

Ganglia (Disambiguation); A **Ganglion** Is A Nerve Cell Cluster Or A Group Of Nerve Cell Bodies Located In The Autonomic Nervous System And Sensory System. Ganglia House The Cell Bodies Of Afferent Nerves (Input Nerve Fibers) And Efferent--Output/Motor--Nerve Fibers, Or Axons.

A **Pseudoganglion** Looks Like A Ganglion, But Only Has Nerve Fibers And Has No Nerve Cell Bodies.

SPINAL NERVES

Among Vertebrates There Are Three Major Groups Of Ganglia:

Dorsal Root Ganglia (Also Known As The Spinal Ganglia) Contain The Cell Bodies Of Sensory (Afferent) Neurons.

Cranial Nerve Ganglia Contain The Cell Bodies Of Cranial Nerve Neurons.

Autonomic Ganglia Contain The Cell Bodies Of Autonomic Nerves.

In The Autonomic Nervous System, Fibers From The Central Nervous System To The Ganglia Are Known As **Preganglionic Fibers**, While Those From The Ganglia To The Effector Organ Are Called **Postganglionic Fibers**.

GANGLION CYST : HISTO-PATHOLGY

GANGLION CYST Of The Hand With Multiple Cystic Chambers-Containing Glairy Material-The Walls Of Bland Fibrous Tissue, With No Specialized Lining.

The Microscopic Anatomy Of The Cyst Resembles That Of Teno-Synovial Tissue, The Fluid Being Similar In Composition To Synovial Fluid.

❖ SITE-

The Most Common Occurrence; Along The Tendon Found At **The Back Of Hand & At The Wrist Joint.**

Although Less Common, The Cysts May Develop **Along Joints And Tendons In The Following Areas:**

-**At The Shoulder,** They Typically Occur At The **Acromio-Clavicular Joint** Or Along The Biceps Tendon.

-**Meta-Carpo-Phalangeal Joint**-Where The Palms Meet The Fingers – Pea Size Small Bumps Presentation.

-**Just Below The Fingertip Cuticle** (Referred To As Mucous Ganglion Cysts)

-**Via Conduit Of The Common Peroneal Nerve Sheath** Propagate Extensively To **A Thigh Location;**

- Proposed Recently That **Cystic Adventitial Disease**, In Which A Cyst Occurs

Within The Popliteal Artery Near The Knee, May Occur By An Articular Mechanism,

With A Conduit Leading From The Joint, Similar To Development Of Ganglion Cysts, Spreading Within Peroneal Nerve.

- **Outer Knee** - Commonly Near The **Cruciate Ligaments**, But May Occur At The Origins Of **The Gastrocnemius Tendon** And, **Anteriorly, On Hoffa's Infrapatellar Fat Pad.**

-**Foot:** Outer Ankle ; Top Of The Foot.

-**Intramuscular Ganglion Cysts** In The **Gastrocnemius Muscle** Of The Calf Have Been Reported.

It Is Possible For A Cyst To Be Displaced Considerably From Its Connection To The Joint.

In One Extreme Case, A Ganglion Cyst Was Observed To In Such Cases Surgery To The Proximal Joint To Remove The Articular Connection May Remove The Need For A Riskier, More Extensive Surgery In The Neural Tissue Of The Thigh.

- **The Cysts May Intrude Into The Spine,** Which May Cause **Pain And Dysesthesia** In Distant Extremities.

Ganglion Cysts May Form In A Wide Range Of Locations.

- **Intraosseous Ganglion Cysts**, Rare Occurrence,

Sometimes In **Combination With A Cyst In The Overlying Soft Tissue.**

Cysts That Were **Compressing One Or More Nerves And Causing Bone Erosions** Have Been Reported To Occur Near **The Shoulder Joint.**

GANGLION CYST LOCATIONS **HAND & WRIST : Ganglion Cysts**

A ganglion cyst can occur...

...on the back of the wrist.

...on the palm side of the wrist.

...or at the base of a finger.

A Ganglion Cyst

At The
End Joint Of
The Finger,

Also Known As A
'Mucous Cyst'.

FOOT: Ganglion Cysts

❖ **AETIO-PATHOGENESIS-** The Exact Cause Has **Not Been Determined** & Remains **Idiopathic**.

A Few **Linkaging Factors** Mainly Involving

Some Alteration In The Normal Functioning Of The Joint Or Tendon Sheath.

"Herniation Hypothesis": The Appearance Of A GC Is The Fluid Leakage From Joint To Its Surroundings. The Most Commonly Accepted Probable Cause Of GC Is, The Occurrence Of

"An Out-Pouching Or Distention Of A Weakened Portion Of A Joint Capsule Or Tendon Sheath."

This Description Ganglion Cyst Of The Hand With Multiple Cystic Chambers Containing **Glairy Material** - The Walls Are Composed Of Bland Fibrous Tissue With No Specialized Lining

Is Based On The Observations That The Cysts Occur Close To Tendons And Joints.

The Microscopic Anatomy Of The Cyst Resembles That Of **Teno-Synovial Tissue**,

The Fluid Being Similar In Composition To **Synovial Fluid**.

Dye Injected Into The Joint Capsule Frequently Ends Up In The Cyst, Which May Become

Enlarged After Activity. Dye Injected Into The Cyst **Rarely Enters The Joint**, However, Which Has Been Attributed To **The Apparent Formation Of An Effective And One-Way "Check Valve"**,

Allowing Fluid Out Of The Joint, But Not Back In.

Another Theory Suggests That Some Trauma Or Long-Term Overuse To The Affected Joint Or Tendon Causes **Joint Tissue To Break Down & Form Multiple Small Cysts**.

These Small Cysts Eventually **Join To Make One Larger Palpable Cyst**.

Post-Traumatic Degeneration Of Synovials, Connective Tissue & Inflammation Considered As Causes.

Other Possible Mechanisms For The Development Of GC Include Repeated **Mechanical Stress, Facet Arthrosis, Myxoid Degeneration Of Periarticular Fibrous Tissues & Liquefaction With Chronic Damage, Increased Production Of Hyaluronic Acid By Fibroblasts & Proliferation Of Mesenchymal Cells**.

A Specific Example Is The Wear And Tear Of **Osteoarthritis**,

Causing Increased Joint Fluids And Resulting In Excess Fluid Leaking Into The Tendon Sheath.

Ganglion Cysts Also May Develop Independently From A Joint.

Although **The Exact Cause** Of This Cyst Is **Still Unknown**, **Injuries**, As Well As **Tendon Irritation**, Can Contribute To The Appearance Of The Ganglion Cyst. **Besides, Any Mechanical Changes**.

RISK FACTORS- Include:

Sex And Age. Ganglion Cysts Can Develop In Anyone,

But They Most Commonly Occur In **Women Between The Ages Of 20 And 40.**

Osteoarthritis. People Who Have Wear-And-Tear Arthritis In The Finger Joints Closest To Their Fingernails Are At Higher Risk Of Developing Ganglion Cysts Near Those Joints.

Joint Or Tendon Injury. Joints Or Tendons That Have Been Injured In The Past Are More Likely To Develop Ganglion Cysts.

❖ **CLINICAL PICTURE-**

- **SYMPTOMS-** Ganglion Cysts Account For **Around Fifty Percent Of All Soft Tissue Hand Tumors.**

Individuals Between **15 And 40** Are More Likely To Have A Ganglion Cyst And This May Be

Especially True For Women And Gymnasts Who Provide Their Wrists With Constant Stress.

People With **Osteoarthritis** And People Who Have Suffered **Tendon Or Joint Trauma** Are More Likely To Experience This Problem. Occasionally, **Children Under 10 Years Old** May Develop This Condition.

Some May Only Have A **Visible Lump** That's **Otherwise Asymptomatic**

Some May Have **No Visible Indication Of The Lump**, But **Feel Pain From Occult Ganglions.**

Experience **Mild, Achy, Continuous Discomfort, Pain** That Intensifies With Joint Motion

Weakness In The Affected Tendon Or Decreased Mobility In The Affected Joint.

Tingling And Burning Sensation, Weakness, Muscle Cramps & Numbness.

Up To 35% Are Without Symptoms Except For Appearance.

The Lumps Associated With GC Can Be **Characterized By:**

Looking Like A **Tiny Water Balloon On A Stalk**, Typically **Round Or Oval**,

Only **One Palpable Large Cyst Or Multiple Palpable Small Cysts.**

Smaller Cysts Will Usually Be **Connected Within The Deeper Tissue.**

Sized Of About 2 Cms Usually, The Size Of The Cyst Can **Fluctuate Over Time.**

The Cyst Often Grows **Smaller As The Affected Joint Or Tendon Is Rested And Larger With Movement.**

Sponge-Like Or Firm, Filled With A Jellylike Lubricating Fluid

(Thick, Clear, Sticky, Odorless, And Colorless), Similar To That Found In Joints Or Around Tendons.

The Cyst Is **Usually Confined & Doesn't Move Around.**

The Cyst May **Appear Gradually Or Suddenly**, **Dissipate Completely & Then Recur At A Later Date.**

Course Of The Disease: About **30-50 %** Of GC Could **Go Away By Themselves.**

In Case They Cannot **Go Away Naturally**, The Needed Management Is Considered.

- **CLINICAL EXAM- On Pressure Application** To The Cyst - For **Tenderness Or Discomfort.**
Trans-Illumination Test- To Determine If It's A **Solid Mass Or Filled With Fluid.**

**Trans-Illumination
Test** **USG:****Depicting Cystic Lesion****An Ultrasound Image
Shows
The Ganglion Cyst
(Area Between Markers)
From Image**▪ **RECOMMENDED INVESTIGATIONS** — Such As-

- **X-Rays:** Will Not Show GC, They Can Be Used To Rule Out Other Conditions, Such As Arthritis Or A Bone Tumor.

AP And Lateral Views Are Needed - To Exclude Any More Serious Underlying Pathology.

- **Ultrasound Or Magnetic Resonance Imaging (MRI)** — To Rule Out Other Conditions, Such As Arthritis Or A Tumor.

MRIs & Ultrasounds Also Can Locate Hidden (Occult) Cyst,

& Can Also Detect Whether There Is An Artery Or Blood Vessel Causing The Lump, Needing Expertise Of A Hand Surgeon / Vascular Surgeon.

MRI Is Extremely UseFul Diagnostic Method, If Avaiable, With The Cost As Drawback.**GC Dx May Be Confirmed By Simple Aspiration Of Fluid** (Thick, Clear /Translucent),

& Sending For C& S, Bio-Chemistry, Cytology.

DIFFERENTIAL DIAGNOSIS

- **Lipoma,**
- **Epidermoid Inclusion Cyst,**
- **Gout,**
- **Hemangioma.**
- **Other Bony; Soft Tissue: Post-Traumatic, Inflammatory & Other Pathologies.**

❖ **CLINICAL MANIFESTATION VARIABLES:****(A) ACUTE STAGE- Symptoms & Treatment:****ACUTE STAGE SYMPTOMS:** Are Characterized By Swelling, Redness, Pain & Possibly A Local Sensation Of Heat (Inflammation) Relieved By Cold Fomentation.The Acute Stage **Initiated By An Injury**, Lasts Until The Swelling And Inflammation Subside.**The Swelling** Is The Result Of The **Blockage Of Blood, Tissue Fluids And Circulation** In The Hand Because Their Normal Movement Has Been Disrupted By The Force Of The Injury.**The Sensation Of Heat** Is Due To The **Warming Action Of The Blood And Fluids Overheating** In The Injured Hand As They **Back Up And Accumulate**.**Stiffness And Decreased Mobility** Are Due To **Spasms In Tendons And Ligaments** That Have Contracted Reflexively Beyond Their Normal Range From The Impact Of The Injury.As **Ligaments And Tendons Stretch And Tear**, **Blood From Ruptured Blood Vessels** Becomes **Trapped In The Local Tissues**. As The Trapped Blood Clots Up, It **Sticks The Tissues Together** Creating **Adhesions**.

Adhesions Cause **Pain, Inflammation And Restricted Movement**, Because **The Layers Of Tissue** That Used To Slide Smoothly Across One Another Now Adhere And Snap Which Interferes With Normal Functioning.

It Is **Essential To Break Up Clotted Blood** As Quickly As Possible,

To **Prevent Adhesions & Scar Tissue Formation**.

During **The Acute Stage** It Is **Very Important To Restore Normal Circulation To The Hand, Break Up Clotted Blood And Stagnant Fluids, Reduce Swelling, And Reduce The Redness And Heat Associated With Inflammation**. By Restoring The Flow Of Blood, Fluids, And Circulation In The Hand, Then Pain Is Relieved, **Damaged Tissues Can Regenerate With Healthy Functional Tissue, And The Hand Can Strengthen And Regain It's Mobility**.

Reported Role Of- Sinew Herbal Ice (More Effective Than Ice); **Acute Sinew Liniment; Sinew Sports Massage Oil**

ACUTE STAGE TREATMENT: Course Of Medications, Cold Compression, Liniment, Massage Oil & As Advised Mobility.

(B) CHRONIC STAGE-This Stage **Begins Once The Swelling And Inflammation Have Subsided**, But **Feeling Of Pain, Stiffness, Weakness, And/Or Sensitivity In Cold & Damp Weather** Exists.

If Heat Makes Pain Feel Better, Then The Chronic Stage Treatment Is Recommended.

CHRONIC STAGE SYMPTOMS: Because There Are **Still Accumulations Of Stagnant Blood And Fluids In Hand That Are Blocking Circulation And Blood Supply To Damaged Tissues,**

Creating Residual Pain, Stiffness & Weakness, Feeling Of Hard Nodules Like Sand In The Tissue, Indicating Accumulation, Calcification & Adhesions- All Causing Pain, Stiffness, And Joint Instability.

More Sensitive To The Cold And Ache In Cold And Damp Weather Due To Impaired Circulation.

A Clicking Or Popping Sound Heard From The Tendons And Ligaments On Movement.

Slipping Very Slightly In And Out Of Their Natural Alignment Indicating Weakness And Joint Instability, Causing Chronic Pain And A Cycle Of Reinjury. These Symptoms Are Often The Result Of Failure To Treat The Injury Properly From The Outset And Overicing.

Increasing Circulation And Blood Supply To The Damaged Tissues Is Very Important In Treating Chronic Injuries Because Tendons And Ligaments Do Not Have An Extensive Direct Supply Of Blood, Similarly, **Chronic Injuries Can Be Slow To Heal**.

Increasing Local Circulation Also Prevents **Cold And Dampness From Penetrating The Injured Area, Preventing Pain And Stiffness**.

During The Chronic Stage It Is **Very Important To Break Up Remaining Accumulations Of Blood & Fluids, And Increase Circulation And Blood Supply To The Damaged Tissues.**

By Increasing Circulation & Blood Flow In The Effected Region,

Pain & Stiffness Is Relieved & The Tendons And Ligaments Can Strengthen To Restore Stability.

CHRONIC STAGE TREATMENT: Reported Role Of-

Chronic Sinew Liniment: The Sinew Relaxing Soak: The Sinew Sports Massage Oil-

Recommended For Use Before & After Exercise, Sports And Strenuous Activity.

Warms & Stimulates Muscles, Increases Circulation And Relieves Tightness, Hence Improving Performance And Helping To Prevent Injury.

❖ **“GC” TREATMENT METHODOLOGIES:**

Many Cysts Can Disappear Without Any Treatment At All.

Various Treatments Have Been Proposed Over The Years. Some Include No Specific Treatment Other Than Reducing Worry Regarding The Cyst, Using A Needle To Remove The Cyst's Contents (Aspiration), Or Surgery.

- **MEDICAL TREATMENT- NON-SURGICAL TREATMENT;**
Initial Treatment Of A Ganglion Cyst Is Not Surgical.

OBSERVATION- As G.C Being Non-Cancerous & Sometimes Has Spontaneous Resolution, **In**

Non-Symptomatic Cases Just Wait & Watch Is Recommended, With An Close Eye Upon **Unusual Changes**.

IMMOBILIZATION- Activity Often Causes The Ganglion To Increase In Size And Also Increases

Pressure On Nerves, Causing Pain. A Wrist Brace Or Splint Up To 7 To 10 Days.

May Relieve Symptoms And Cause The Ganglion To Decrease In Size.

As Pain Decreases, Wrist Strengthening Exercises With Movement Range Improvement Are Advised.

Recent Studies Show That Splinting For A Long Period Of Time Doesn't Really Help,
And Use Of The Joint Soon After Treatment Is Being Encouraged.

ASPIRATION- If Great Deal Of Pain Or Severe Limitation Of Activities, The Fluid May Be Drained From GC. This Procedure Is Called An Aspiration. With Complete Asepsis, With / Without LA, The Area Around The Ganglion Cyst Is Numb And The **Cyst Is Punctured With A Needle So That Fluid Can Be Withdrawn. Joint Movement;** Soon After The Procedure, Is Advised.

Aspiration Frequently Fails To Eliminate The Ganglion Because The **"Root" Or Connection To The Joint Or Tendon Sheath Is Not Removed.** A Ganglion Can Be Like A Weed Which Will Grow Back If The Root Is Not Removed. In Many Cases, The Ganglion Cyst Returns After An Aspiration Procedure. The Cystic Cavity Infection With Sequeale Is Important Avoidable Complication.

Aspiration Procedures Are Most Frequently Recommended For Ganglions Located On The Top Of The Wrist.

Reported Role Of Injecting A Steroid Compound (Anti-Inflammatory).

**The Jellylike Fluid Taken From The Cyst.
Its Presence Confirms
The Diagnosis Of A Ganglion Cyst.**

❖ **SURGICAL TREATMENT;**

Surgical Removal Of The Cyst Is **Indicated-** **When The Mass Is Painful, Interferes With Function (Especially When Dominant Hand Is Involved), Or Causes Numbness Or Tingling Of The Hand Or Finger, Not Relieved By Nonsurgical Methods, Or If GC Recurs After Aspiration.** The Procedure Is **GC Removal** Known As **'Excision Biopsy'- Ganglionectomy,** & Involves **Removing The Cyst As Well As Part Of The Involved Joint Capsule Or Tendon Sheath.** Excision Is Typically An **Outpatient Procedure** And Patients Are Able To Go Home After A Period Of Observation In The Recovery Area.

There May Be **Some Tenderness, Discomfort, And Swelling After Surgery.**

Normal Activities Usually May Be Resumed **2 To 6 Weeks After Surgery.**

Rarely, The Surgery Can Injure The Surrounding Nerves, Blood Vessels Or Tendons & The Cyst Can Recur, Even After Surgery.

WRIST: SURGICAL ANATOMY

**‘EXCISION BIOPSY’:
GANGLIONECTOMY:
PER /
POST- OPERATIVE.**

Wrist -Band

How to Wear

Physio-Therapy

■ FOLLOW-UP CARE;

Role Of Physio-Therapy Or Occupational Therapy

Strengthening Exercises; Wrist Are Ideal To Build Strength And Flexibility.

Involved Joint /Region Exercises.

Massage Treatment: Wrist/ Involved Joint/Region Massage Techniques Are Of Great Value In Pain Relief; Circulation Stimulation; Dispersing Blood And Fluid Accumulations; Swelling Reduction; And Relaxing Muscle Spasms, With Sinew Therapeutics Liniments And Soaks.

To Relieve Pain: Consider An Over-The-Counter Pain Reliever, Such As Ibuprofen (Advil, Motrin Ib, Others) Or Naproxen Sodium (Aleve).

Modifying FootWear; Or Lacing Shoes In Some Cases, Can Relieve The Pain Associated With GC On Ankles Or Feet.

- **LIFESTYLE AND HOME REMEDIES**
- **THINGS NOT TO DO-**
- **"Thumping" The Cyst With A Heavy Object:** This Isn't A Good Solution Because
The Force Of The Blow Can **Damage Surrounding Structures In Hand Or Foot.**
- **Self "Popping" The Cyst By Puncturing It With A Needle:** Is Unlikely To Be **Effective**
And Can Lead To **Infection.**
- **PREVENTION:** Because The Cause Of A Ganglion Cyst Is Not Known, It Is
Difficult To Advise About Prevention. Early Evaluation & Treatment Are Recommended.
- **COMPLICATIONS:** May Include **Joint Stiffness & Scar Formation.**
Recurrence Of The Lesion Is More Common Following Excision Of A **Volar** Ganglion Cyst In Wrist.
Incomplete Excision That Fails To Include The Stalk Or Pedicle &
Failure To Execute A Layered Closure Of The Incision Also May Lead To **Recurrence.**
- **'GC' MANAGEMENT: EXPERTISED DEPARTMENTS:** **Orthopedic Surgery;**
Physical Medicine & Rehabilitation; Plastic & Re-Constructive Surgery
- **SCOPE OF RESEARCH: Orthopedic Surgery Research, Radio-Diagnostic Faculties.**
- **PROGNOSIS: Reported Higher Recurrence Rate In Aspirated Cysts Than In Excised Ones.**
 - **GC Have Been Found To Recur Following Surgery** In 12% To 41% Of Patients.
 - **Reported Study - Neither Excision Nor Aspiration**
Provided Long-Term Benefit Better Than No Treatment
The Untreated Ganglion Cysts, 58% Resolved Spontaneously;
The Post-Surgery Recurrence Rate In This Study Was 39%.
 - A Similar Study In 2003- Regardless Of Treatment, No Difference In Symptoms Was Found,
Regardless Of Whether The Palmar /Volar Wrist Ganglion
- **OUTLOOK:** Because This Is A Harmless Tumor That Can Go Away On Its Own,
Or After A Simple Needle Aspiration Or Minor Surgery,
Chances OF **Full Recovery Are Good Except Recurrence, Complications & Sequelae.**
However, A Single Treatment May Not Be Enough.

❖ **REPORTED HOME REMEDIES- NATURAL TREATMENTS –**

Quite Efficient For Mild To Moderate Ganglion Cysts.

1. **ARNICA:** Contains Anti-Inflammatory Properties; Reported Allergic Or Sensitive Reactions AST; Available As Oil, Ointment, Capsule;
Also Very Good For Glowing Skin And Removing Body Toxins , Effective In Boosting The Immunity.
2. **FRANKINCENSE OIL:** Reduce Ganglion Cyst Size And Simultaneously Relieve Caused Pain And Inflammation
Directions: Rub 2 Drops Over Affected Area.; Bandage To Cover -Need To Change The Dressing After Every 2 Days
Follow This Method About 14 Days After Your Ganglion Cyst Is Removed To Ensure That It Will Not Come Back.
3. **TURMERIC EXTRACT:** Has Positive Effects On Inflammation As Well As Caused Pain; Study Published In 2009,
Ingredient Curcumin Exhibits The Anti-Inflammatory Activities **Effectively By Regulating Redox Status, Protein Kinases, Cytokines, Adhesion Molecules, Enzymes As Well As Other Transcription Factors ,**
Associated With Inflammation.
Daily Intake Of Turmeric 400 – 600 Mg.
Precaution; As Increases The Risk Of Bleeding, So Physician Consultation Is Necessary With Any Of The Blood
Thinning Medications Co-Existent Circumstances.
Direct Application Of Some Fresh Turmeric Juice; 2-3 Times Daily; For Few Days.
4. **PENCIL ERASER:** For Small GC Considered After Ensuring Rounded Edges, So As Not To Dig Into GC
Directions: Cover All Sides Of GC With The Pencil Eraser; Use A Stretchy Bandage Or Gauze To Wrap
Around GC & Keep Eraser In Place; May Change The Bandage Or Gauze After Every 2 Days.
5. **WARM COMPRESS:** One Of The Popular Ways ;Using Soaked Clean Washcloth; Dipping In Lukewarm Water Container.
6. **FRESH FRUITS AND VEGETABLES:** Extremely Rich In Vitamins & Minerals, Help To Strengthen The Immune System, Very Good
For Healing Wound More Quickly, Simultaneously Reduce The Risk Of Developing Constipation.Improves Overall Health.
7. **MIXTURE OF BORAX, EPSOM SALT & GLYCERIN:** Effective In Lightening & Curing GC..
Directions: 3 Oz Of Warm Glycerin, 1/8 Tsp. Of Borax And ½ Tsp. Of Epsom Salt.Mixed Until Completely Dissolved;
Cover G C With A Clean Cotton Swab: Bandage To Cover The Area Secured With Medical Tape;Repeat Twice A Day;
Alternatively, 1 Tbsp. Of Epsom Salt To 1-2 Cups Of Tepid Water Mixture Soaking The Skin Area With GC For About
20-30 Minutes;Repeated Once A Day For A Couple Of Days.
8. **GINGER:** Is Comprised Of Anti-Inflammatory Properties, Effective In Reducing The Pain And Inflammation &

Is Good At Blocking The Activity Of Cox-2 Contributing To Pain.

Additional Ginger To Diet Or Using Ginger Supplements Dose- 500 –1000 Mg Per Day For 1-2 Times.

Alternatively, **Ginger Tea** For 2-3 Times Daily.

9. HAZEL OF WHITE OKA BARK TEA: Effective Old Way ; Reduces The Size Small Enough To Be Removed From The Skin Easily.

The Use Is Easy And Simple - Applied Over GC – Kept In Place For A Couple Of Minutes Until The Compress Penetrates The Skin.

10. RED DESERT CLAY: Often Used To Remove The Harmful Toxins And Chemicals From The Body. Additionally, It Also Helps In Providing The Body With A Variety Of Minerals, Contributing To Bone Building & GC Size Reduction.

Need To Use 1 Teaspoon Of Red Desert Clay Twice A Day. **Alternatively**, Taking 5-6 Red Desert Clay Tablets Considered.

To Avoid Caused Constipation- 1-3 Tsp. Of Magnesium Powder Is Added.

11.

GRAPEFRUIT SEED EXTRACT: Many Uses & Benefits Due To Antimicrobial Properties, Effective In Getting Rid Of A GC.

Directions: 1 Drop Is Applied To GC; Allowed To Be Absorbed Into The Skin Completely Before Covering It With A Band Or Gauze.

12. SHOES CHANGE: For GC On Foot Or Toe, **Avoiding Wearing Shoes** That May Squeeze Or Constrict GC. For The Better Results, **A Pair Of Flip-Flops Or Open-Toed Shoes.**

For Using **Closed-Toe Shoes; The Laces Or Straps Tied Looser Than Normal**, Avoiding GC Irritation.

Non-Breathable Fabric Such As Polyester Or Leather Or Those With Tight Zippers Should Be Avoided.

13. TEA TREE OIL: D/T Its Anti-Inflammatory As Well As Antimicrobial Properties,

Is Used For Sebaceous Cysts, Pilonidal Cysts Treatment Besides G.C.

Directions: 2 Drops Of Tea Tree Oil Diluted With Some Coconut Oil Mixture; Applied To GC; Cover The Area With Band And Let It Work; Repeat The Process Daily Until You See An Improvement.

14. CASTOR OIL: Comprises An Antibacterial Compound Called ‘**Ricin**’ Responsible For Therapeutic Role To Treat The Skin Infection, Swelling As Well As Irritation, Very Effective In Curing Ganglion Cyst When Applied To An Infected Cyst For Several Times Per Day.

Directions: A Clean Cloth Dipped In Some Castor Oil, Placed On GC For About 20- 30 Minutes.

Alternatively, Applying The Oil Directly Onto The Affected Area Daily.

15. MASSAGE THE GANGLION CYST: Appearing Like A Small Balloon Of Liquid, Once Pressing Against The Nerve, Causes Pain.

Just Lightly Rubbing The Ganglion Cyst Regularly During The Day, Massaging The Affected Area. Without Any

Specific Technique Or Professional Massage Therapy, Noticeable Improvement After A Short Time Can Be Observed..

16. ECHINACEA: Known For Its Ability To Increase The Levels Of The Chemical Called ‘**Properdin**’ In The Body

That Helps In Stimulating The Immune System And Treat The GC.

Directions: Use In The Form Of The Ointment And Apply It To The Affected Area. For The Best Results, Repeat This Method For 2-3 Times Daily Until It Has Completely Gone.

Alternatively, Drink Echinacea Herbal Tea Drink, For 1-2 Times Daily For Only A Week.

Caution: People With Autoimmune Disorder Should Not Take This Herb Internally.

17. APPLE CIDER VINEGAR: Effective For Treating The Symptoms Of GC & Other Skin Problems D/T Antiseptic As Well As Antimicrobial Properties.

Directions: A Cotton Ball Dipped In Some Apple Cider Vinegar, Is Placed On GC & Kept In Place By Using A Band; Allowed To Rest For About 30 Minutes ,For Several Times Per Day.

18. Avoid Thumping Or Draining The Cyst: As It Only Cause Damages On The Skin Tissues Around Ganglion Cyst.

Stop Popping Or Draining Ganglion Cyst With A Needle, Only Make It Worse, Resulting In An Infection.

19. CONSUMPTION OF MORE FOODS CONTAINING ANTI-INFLAMMATORY PROPERTIES: Include Salmon, Ginger, Avocados, Flax Seeds, Turmeric, Olive Oil, Tart Cherries, Walnuts, Blueberries, Blackberries, Sweet Potatoes As Well As Spinach. **Simultaneously, Stop Consuming** Inflammatory Drinks And Foods, Including White-Flour Products, White Rice, Sugary Foods, Soda, Foods High In Saturated Fats.Etc.

20. ALOE VERA GEL: Contains Anti-Inflammatory Properties , Supporting Speeding Up The Healing Process, With Very Help Ful Role In Reducing Pain & Swelling.

Directions: The Gel From A Fresh Leaf Of Aloe Vera Is Taken & Gently Applied Directly To The Skin On GC; Retained For More Than 20 Minutes; Finally, Washed Off With Tepid Water; Followed Several Times Per Day For Few Days.

21. WITCH HAZEL: Another Effective Way Based Upon Research About Benefits Of Therapeutic Witch Hazel Extract(Leaves And Bark) For Skin Care, By Astringent Properties Due To Constituent Tannins Skin Tightening & Simultaneous Limitation Of Causative Oil Secretion.

Directions: Just 1- 2 Drops Of Witch Hazel Extract Applied Over GC, Retained Intact For Several Hours, Repeated Daily For The Best Results.

22. BLACK TEA BAGS: An Acidic Property Helps GC Quick ,Natural Treatment & Further Deterioration Prevention.From Getting Worse. The Anti-Inflammatory Properties Offers An Instant Relief From Pain And Swelling In An Effective Way.

Directions: Prepare A Black Tea Bag Soaked In Lukewarm Water For 5 Minutes; Squeeze Out And Remove The Excess Water;

Place The Warm Tea Bag Over Skin The Ganglion Cyst Where A Is Present For At Least 10 Minutes.

Repeat The Simple Way For A Couple Of Times Daily For A Few Days.

23. LEMONGRASS ESSENTIAL OIL: Obtained By Steam Distillation From Lemongrass Blades, Useful For Slack Tissue, Muscle Pain As Well As Poor Circulation. The Pain-Relieving Properties Found In This Oil Are Good For Reducing The Pain Caused By The Cyst.

24. THYME ESSENTIAL OIL: A Hot Oil, Extracted From The Leaves Of The Herb Thyme, Also Has Thymol, Diluted Form Applied To The Skin, Offers A Soothing Sensation With Instant Relief From The Agonizing Aches.

Reported As Amongst The Best Ways To Treat A Ganglion Cyst At Home

25. CYPRESS ESSENTIAL OIL: Known For Its **Stimulant Properties**, Improving / Regulating Poor Circulation & Analgesic, Anti-Inflammatory And Diuretic Properties, For Pain Reduction & Fluid Drainage, Renders Its Usefulness.

26. OREGANO ESSENTIAL OIL: Contains **Anti-Tumor Properties** & Help In GC Treatment Is Reported.. Mixture With Some Frankincense Oil, In A Base Oil Like Castor Oil Offers Faster Results. As A **Very Hot Oil**, So It Must Be Used With **Caution: Dilution Before Using & Not Using Too Much Quantity**, As Can Cause **Burning Sensations On The Skin.**

27. BROMELAIN: An Enzyme From Pineapple. Reported . Symptoms Resolution With **200-250mg Of Bromelain For 4 Times A Day.** **Contraindication;** Peptic Ulcer.

28. SERRAPEPTASE: Is Known As A Natural Supplement That May Be Used To Deal With
All Non-Living Tissue That Causes Troubles In The Body.

29. NEEDLE PIERCING:

30. BOOK METHOD: Hitting With The Help Of A Book, Sounds Barbaric, But A Popular Way To Treat GC. With Courage To Try.
Hitting On A GC Several Times With A Heavy Book Is Done. The Method Is Not Effective As The Ganglion Cyst
Temporarily Goes Away And The Fluid Becomes Dispersed But It Is Still Inside, So Reoccurs Quickly.

(Vkool.Com)

MATERIALS & METHODS:

The Present **Multi-Centric Study**, In Discussion,
Performed **During Last (2) Decades**,
Comprises **Comparative OverAll Treatment Result Outcome Evaluation**,
Of **About (100) Patients**,
Using **Conservative Measures, Aspiration, Surgical Excision &**
Described “Suton Sutures” Technique.

“The Study Group” Comprised Patients-

- From Both Sexes,
- In 2nd To 5-7th Decades Of Life,
- From Different Occupations Including
Heavy Manual To Discrete Skilled (Computonics) & Others.
- With/WithOut Previous History Of Direct / Indirect Trauma.
- With/WithOut Co-Morbidities e.g Gout, Osteo-Arthritis Variables.
- Other Associated Orthopaedic / Burn-Plastic Complications.

“The Result Outcomes” Were Compared With Regards To-

- Variation Of Treatment Duration By Suton’s Sutures Technique:
Repeat Manovre, Alternate Day, Dressing With Compression Bandage
At 3rd-5th-7th Day; Followed By Suture Pulled Out
After Complete Regression Of Swelling.
- Previous Treatment History- Conservative Measures; Aspiration; Surgery Etc.
- Co-Existent Morbidities; Diabetes, Gout, Osteo-Arthritis,
Previous Bony/Soft Tissue Trauma In The Region Or Vicinity.
- Infection
- Recurrence- Early & Delayed. [6, 7, 8, 9, 10]

TECHNIQUE METHODOLOGY:

The Discussed Management Methodolgy Comprises-

Under Complete ‘Asepsis’,

With / WithOut L.A Support (2% Xylocaine With/WithOut Adrenaline;AST
Or Available Local Spray/ Jelly),

& Complete Patient Compliance,

Placement Of (2) Horizontal & Or (1) Vertical & (1) Horizontal Sutures In The Swelling,
(SutuPac No.1 On 3/8 Circle Cutting Needle, 60mm)

Compressing Out All The Oozing Gelatinous Material,

From (4) Wide Bore Prick Points,

Followed By RetainMent Of Placed Sutures With Sterile Dressing & Compression Bandage
(Available Hand; Wrist Band May Be Utilized AfterWards).

**WithIn About 48-72 Hours, After Cleaning,
The Remaining Cystic Contents Are Expressed Out,
Facilitated By The Inward & OutWard Movement Of Sutures
Through Subsiding /Subsided Swelling.
Depending Upon The Swelling Status,
After Repeation Of Compressing Out Cystic Cavity Contents
(2-3 Times On Alternate Days), Sutures Are Simply Pulled Out.**

(A.) – Dorsal Carpal Ganglionic Cyst

A.

Swelling

(B.) & (C.)-

(2.) Horizontally Placed

Suton's Sutures

(Demarcated By Green Color)

- Horizontal/ Oblique Sutures

(Red Color Arrows Demarcating
To & Fro Movement Of Sutures
Manipulations,

Retaining Patency Of (4.) Pricks &
Facilitating Expressing Out Of
Cavity Contents,
Supported By Dorsi & Palmar Flexion
Movements Of Wrist Joint.

**Proper Choice Of - Appropriately Sized Cutting Needle (Cutting/ Straight)
- On Needle / WithOut Needle Dependably Strong**

Absorbable/ Non-Absorbable Suture
Forms The Basis Of Surgeons Discretion- As Per Availability.
Depending Upon- Swelling Size,
Patients Skin Thickness & Other Factors & Avoids
Breaking Of Suture During Subsequent Manovures Or Infection
That May Need Removal By Surgical Exploration.

MEDICATIONAL SUPPORT:

- Appropriate Broad Spectrum AntiMicrobials With Anaerobes;
 Combined With Anti-Inflammatory, Analgesic, Serratio-Peptidase/
 Trypsin-Chymo-Trypsin Preparations; Under Ant-Acid Cover With B-Complex.
 Anti-Septic / Anti-Biotic Ointment.
- Co-Morbidities (?Diabetes, Gout Etc.) Control

Complete Asepsis,
Advised Mobility.

RESULTS:

Performed Under Strict Aseptic Precautions, Proper Patient Compliance, With/Without L.A,
 With The Simple (2) Sutures; (4) Prick Technique,
 Complete Resolution Of Swelling Within 4-6 Days, Can Be Achieved In >95% Cases,
 Avoiding Hazards & Complications Of ‘Surgical Excision’, &
 Much Less Recurrence Rate As Compared To ‘Aspiration’
 & Other Conservative Measures,
 Due To Complete Evacuation Of Cystic Cavity Contents,
 Through (4) Wide Enough Prick Openings,
Supported By- In-Ward & Out-Ward Manovuring Of (2) Dependably Strong In-Place Suture &
Facilitated With- Dorsi & Palmar Flexion At Wrist Or Involved Joint

CONCLUSION:

The Simple, Safe Procedure With The Ease Of Performance,
 With Almost Negligible Complication Rate &
 Much Less Recurrence Rate As Compared To Other Management Modalities,
 Supportively Ascertains “Suton’s Sutures” Technique Status,
 As An Acceptable Management Methodology,
 Amongst Vividly Practiced Regimes Globally,
 As Per Compliance & Availability. [\[11, 12, 13, 14, 15, 16\]](#)

CONFLICT OF INTEREST STATEMENT:

The Author Declares That The Research Was Conducted In The Absence Of
 Any Commercial Or Financial Relationships That Could Be Construed As
 Potential Conflict Of Interest.

ACKNOWLEDGEMENTS:

Dr.(Mrs.) Poonam Sahni M.B.B.S, D.G.O(Gold-Medalist).
 With Gratitude For Rendered Moral Support,

& Sincere Thanks For Consulted: Involved Study Material Resources: Print & Electronic Media.

REFERENCES:

1. **Etymology Of The Greek Word Ganglion.** Archived From Original On 2013-10-06.
2. J.C. Segen (1992). *The Dictionary Of Modern Medicine* . Archived From The Original On 2017-09-10. (**Entry For Aneurysmal Bone Cyst, Which "Like Pyogenic Granuloma And Ganglion Cyst, A Misnomer That Has Withstood The Sands Of Time And The Dint Of Logic"**)
3. **"National Library Of Medicine - Medical Subject Headings (Mesh) – Ganglion Cyst"**. Archived From The Original On March 10, 2016. Retrieved August 27, 2013.
4. **Ganglion Cyst – Wikipedia-** https://en.wikipedia.org/wiki/Ganglion_cyst 6/8
5. **"Ganglion Cyst Of The Wrist And Hand- Orthoinfo"** . *Orthoinfo.Aaos.Org*. March 2013. Archived From The Original On 6 July 2017. Retrieved 10 June 2017.
6. **The Wrist: Diagnosis And Operative Treatment.** A B Cooney, William P. (2011). Lippincott Williams & Wilkins. P. 1089. ISBN 9781451148268. Archived From The Original On 2017-09-10.
7. **Pocket Guide To Musculoskeletal Diagnosis.** Springer. 2005. P. 63. ISBN 9781597450096.
8. **"Palmar Wrist Ganglion: Does Intervention Improve Outcome?** Dias J, Buch K (Apr 2003). A Prospective Study Of The Natural History And Patient-Reported Treatment Outcomes". *J Hand Surg Br.* 28 (2): 172–6. Doi:10.1016/S0266-7681(02)00365-0.
9. **"The Natural History Of Untreated Dorsal Wrist Ganglia And Patient Reported Outcome 6 Years After Intervention"**. Dias JJ, Dhukaram V, Kumar P (October 2007). *The Journal Of Hand Surgery, European Volume.* 32 5): 502– 8. Doi:10.1016/J.jhse.2007.05.007. PMID 17950209
10. **"Surgical Excision Of Wrist Ganglia; Literature Review And Nine-Year Retrospective Study Of Recurrence And Patient Satisfaction"**. Lidder S, Ranawat V, Ahrens P (2009). *Orthop Rev.* 1 (1): E5. Doi:10.4081/Or.2009.E5 . PMC 3143961 . PMID 21808669 .
11. **The Wide Awake Approach To Hand And Wrist Ganglia: Ten Year Experience, Technical Tips And Review Of Macroscopic Pathology And Outcomes Of 300 Cases.** OA Case Reports 2013 Nov 15;2(13):129. Bismil MSK, Bismil QMK.
12. **"Falling Up The Stairs: The Equivalent Of 'Bashing It With A Bible' For An ACL Ganglion Cyst Of The Knee"** . Dacombe, PJ; Robinson, J (Mar 27, 2012). *BMJ Case Reports.* 2012. Doi:10.1136/Bcr.01.2012.5591 . PMC 3316796 . PMID 22605799.
13. **Excision Of The Ganglion Cyst** Camasta, Craig A., DPM, Archived 2013-11-01 At The Wayback Machine., Podiatryinstitute.Com, Update 1993, 1993 33 Pdf, Pages 181–5.
14. **"Arthroscopic Resection Of Dorsal Wrist Ganglia:** Gallego S, Mathoulin C (2010). 114 Cases With Minimum Follow-Up Of 2 Years". *Arthroscopy.* 26 (12): 1675– 1682. Doi:10.1016/J.arthro.2010.05.008 . PMID 20952152 .
15. **"The Differential Diagnosis Of Foot Lumps: 101 Cases Treated Surgically In North Glasgow Over 4 Years"**. Duncan JM Macdonald; Et Al. (August 2007). *Annals Of The Royal College Of Surgeons Of England.* 89 (3): 272– 275. Doi:10.1308/003588407x168235 . PMC 1964714 . PMID 17394713
16. **"E-Hand.Com The Electronic Textbook Of Hand Surgery"** . The American Society

For Surgery Of The Hand Assh.Com. Archived From The Original On March 9, 2014.
Retrieved April 12, 2014.