***Dr. AMMAR YASEEN MANSOUR***

***The Pathophysiology of Multi- Motor- Response  
Spinal Hyperreflex***

*A neural coup d'état – where interneurons dissolve segmental borders, conscripting motor circuits into a chaotic hive-mind."*

*[video](https://youtu.be/A1HcXC6VmEI)*[*To watch a brief video explaining the pathophysiology of the Multi-Motor-Response Spinal Hyperreflexia, click this link:*](https://youtu.be/A1HcXC6VmEI)

***Core Mechanism: Pathological Circuit Convergence***

***Trigger****: UMN lesion →****Interneuron hyperactivity****creates aberrant alliances between:*

* *Agonistic neural circuits (evolutionarily paired)*
* *Antagonistic neural circuits (normally mutually inhibitory)*

***Key Pathological Features***

| ***Normal Response*** | ***Multi-Motor Hyperreflexia*** |
| --- | --- |
| *Stimulus → Single motor output* | ***Stimulus → Multiple motor outputs*** |
| *Reciprocal inhibition (agonist/antagonist)* | ***Loss of inhibition → Co-contraction*** |
| *Functionally purposeful* | ***Discordant, purposeless movements*** |

***Clinical Examples****:*

| ***Stimulus*** | ***Normal Reflex*** | ***Pathological Response*** |
| --- | --- | --- |
| *Patellar tap* | *Knee extension* | *Knee extension + Hip flexion* |
| *Finger flick* | *None* | *Finger flexion (Hoffman) + Wrist flexion* |
| *Plantar scratch* | *Toe flexion* | *Toe extension (Babinski) + Ankle dorsiflexion* |

***Neurophysiological Basis***

1. ***Agonist Circuit Recruitment***
   * *Revival of primitive synergies (e.g., Babinski’s Sign)*
2. ***Antagonist Circuit Hijacking***
   * *Most pathologically significant: Forced partnership between naturally opposing circuits →****Rigidity & Weakness***
3. ***Glutamatergic Storm***
   * *Interneurons override GABAergic inhibition → Simultaneous agonist/antagonist firing*

*"Interneurons become anarchist matchmakers—forcing enemies into doomed marriages."*

***Why Antagonistic Partnerships Are "Condemned"***

***Pathological Consequences****:*

| ***Partnership Type*** | ***Mechanism*** | ***Clinical Manifestations*** |
| --- | --- | --- |
| ***Agonistic Circuits*** | *Co-activation of evolutionarily linked muscles* | *Pathological reflexes (Hoffman, Babinski)* |
| ***Antagonistic Circuits*** | *Loss of reciprocal inhibition* | ***Muscle rigidity + Functional weakness*** |

***Critical Insight****:  
Antagonistic co-activation causes:*

* ***Rigidity****: Constant muscle battle → Increased tone at rest*
* ***Weakness****: Energy wasted on internal conflict → Reduced net force output*
* ***Early Fatigue****: Metabolic exhaustion from futile contractions*

***Clinical Correlation: Spastic Paralysis Triad***

1. ***Pathological Reflexes****(Agonist circuits)*
   * *Babinski, Hoffman*
2. ***Rigidity****(Antagonist circuits)*
   * *Clasp-knife phenomenon: Initial resistance → Sudden release*
3. ***Weakness***
   * *Not paralysis but****inefficient force generation***

*"Rigidity and weakness are two faces of the same coin—antagonists trapped in a metabolic wrestling match."*

***Therapeutic Implications***

***Treatment Challenges****:*

* *Agonist hyperactivity → Manageable with GABA agonists*
* *Antagonist co-activation →****Treatment-resistant****(requires circuit disruption)*

***Intervention Strategies****:*

| ***Target*** | ***Approach*** | ***Rationale*** |
| --- | --- | --- |
| ***Agonist Overactivity*** | *Botulinum toxin to overactive muscles* | *Reduces pathological reflexes* |
| ***Antagonist Co-Activation*** | *Dorsal root entry zone (DREZ) lesioning* | *Severs sensory input to antagonistic circuits* |
| ***Global Circuit Chaos*** | *Intrathecal baclofen + rTMS* | *Combats glutamatergic storm & restores inhibition* |

***Prognostic Reality****:  
Antagonistic involvement →****Poor functional recovery****due to irreversible rigidity/weakness.*

***Conclusion: Neurology of Forced Alliances***

*This model defines multi-motor hyperreflexia as:*

*"A neural civil war—where interneurons draft rival circuits into battle, turning precise reflexes into discordant motor chaos."*

*This explains three clinical imperatives:*

1. ***Distinguish spasticity from rigidity****(antagonistic involvement = worse prognosis)*
2. ***Prioritize early GABAergic intervention****to prevent circuit entrenchment*
3. ***Accept functional trade-offs****in chronic cases (e.g., selective denervation)*

|  |
| --- |
|  |
| *[video](https://youtu.be/A1HcXC6VmEI)* ***Pathophysiology of Multimotor-Response Spinal Hyperreflexia*** *[For video explanation, click here:](https://youtu.be/A1HcXC6VmEI" \t "_blank)*  ***Core Mechanism: Pathological Circuit Fusion***  ***Process:*** *Post-UMN lesion → Interneurons bridge hyperreflex circuits across adjacent spinal segments (X, X+I, X+II), creating a unified aberrant network.*  ***Key Pathological Features***   | ***Normal Physiology*** | ***Multimotor Hyperreflexia*** | | --- | --- | | *1 stimulus → 1 motor response* | ***1 stimulus → Multiple motor responses*** | | *Segmental isolation* | ***Cross-segmental circuit fusion*** | | *Functionally specific* | ***Discordant, non-purposeful outputs*** |   ***Clinical Examples:***   * *Patellar tap (L4) → Knee extension + Hip flexion* * *Plantar stimulus → Babinski sign + Toe fanning*   ***Neurophysiological Basis***   1. *Interneuron Hyperactivity*    * *Overexpression of glutamate → Fuels cross-circuit signaling* 2. *Loss of Inhibitory Control*    * *Absent cortical GABAergic suppression → Unchecked signal spread* 3. *Maladaptive Synaptic Potentiation*    * *"Silent synapses" in adjacent segments activated → Circuit integration*   *"Interneurons become anarchist unifiers—melting spinal segments into a single pathological entity."*  ***Why Multimotor Responses Worsen Disability***   1. *Energy Waste*    * *Co-contracting muscles cancel useful movement → Net weakness* 2. *Functional Chaos*    * *Walking attempt → Leg extension + hip flexion + foot inversion (→ fall risk)* 3. *Metabolic Exhaustion*    * *Futile contractions deplete ATP → Early fatigue*   ***Therapeutic Challenges & Strategies***   | ***Challenge*** | ***Intervention*** | ***Limitations*** | | --- | --- | --- | | *Circuit Redundancy* | *Dorsal root ganglion (DRG) radiofrequency ablation* | *Temporary relief* | | *Glutamatergic Storm* | *Intrathecal riluzole (glutamate inhibitor)* | *CNS side effects* | | *Irreversible Fusion* | *Functional electrical stimulation (FES)* | *Retrains circuits, not curative* |   ***Prognostic Reality:*** *Multimotor responses signal end-stage maladaptive plasticity → Focus shifts to palliative symptom control.*  ***Clinical Correlation:***   | ***Pathological Reflex*** | ***Mechanism*** | | --- | --- | | *Babinski Sign* | *Fusion of plantar + toe extension circuits* | | *Hoffman Sign* | *Fusion of finger flexion + wrist flexion circuits* | | *Muscle Spasm* | *Agonist-antagonist co-activation (e.g., biceps/triceps)* | | *Rigidity* | *"Condemned partnership" of antagonistic circuits* |   *"Rigidity is the price of forced neural alliances – enemies shackled together, waging constant war."*  ***Conclusion: Neurology of Forced Unity***  *This model defines multimotor hyperreflexia as:*  *"**A neural coup d'état – where interneurons dissolve segmental borders, conscripting motor circuits into a chaotic hive-mind."*  *This explains three clinical imperatives:*   1. *Early intervention prevents circuit fusion* 2. *Rigidity ≠ spasticity – requires targeted therapy* 3. *Antagonistic co-activation is the chief driver of disability* |

*......................................................................................................................*

*In other contexts, you can also read the following articles:*

|  |  |
| --- | --- |
| *[video](https://youtu.be/ClqHfY65WQI)* | [*The Spinal Reflex, New Hypothesis*](https://drive.google.com/file/d/1Nh0yxWLf3gPOlSKdftIZykUjb3xpsPBe/view?usp=sharing) *of Physiology* |
| *[video](https://youtu.be/qlgZUbWVXzs)* | [*The Hyperreflexia, Innovated Pathophysiology*](https://drive.google.com/file/d/14TlTu_9KrF0DGbEDE_VgCpYdSAzBMVU7/view?usp=sharing) |
| *[video](https://youtu.be/kwwsHHKh0AQ)* | [*The Spinal Shock*](https://drive.google.com/file/d/1qQ6Ch-mVj1boww9SAhkPVTwFhX2kVoXR/view?usp=drive_link) |
| *[video](https://youtu.be/rBk0X29hs6w)* | [*The Spinal Injury, the Pathophysiology of the Spinal Shock, the Pathophysiology of the Hyperreflexia*](https://drive.google.com/open?id=1qQ6Ch-mVj1boww9SAhkPVTwFhX2kVoXR) |
| *[video](https://youtu.be/rBk0X29hs6w)* | [*Upper Motor Neuron Lesions, the Pathophysiology of the Symptomatology*](https://drive.google.com/file/d/1kwE-QYZWVzHsadu0wFL4Ckl5o2hGaxMe/view?usp=sharing) |
| *[video](https://youtu.be/G6my9xo1iM8)* | [*The Hyperreflexia (1), the Pathophysiology of Hyperactivity*](https://drive.google.com/file/d/1vZcRPdwBC4iqv8jwi3YewvOv9yKfegt4/view?usp=drive_link) |
| *[video](https://youtu.be/q1mMORyoNLY)* | [*The Hyperreflexia (2), the Pathophysiology of Bilateral Responses*](https://drive.google.com/file/d/1Gd85ZcKFIMG_0H6QeE7mez4-XvP1o2OV/view?usp=sharing) |
| *[video](https://youtu.be/5iViwU_y3-M)* | [*The Hyperreflexia (3), the Pathophysiology of Extended Hyperreflex*](https://drive.google.com/file/d/18soM_THFCzezkfBfBEG9UdoO0qWHLGlz/view?usp=sharing) |
| *[video](https://youtu.be/PteMImPyZ0A)* | [*The Hyperreflexia (4), the Pathophysiology of Multi-Response Hyperreflex*](https://drive.google.com/file/d/1xRj0t5guxfzMsl3b0aeg6SHdWCwlQIEw/view?usp=sharing) |
| *[video](https://youtu.be/crbdk1RTU64)* | [*The Clonus, 1st Hypothesis of Pathophysiology*](https://drive.google.com/file/d/1WoXzIR5GdtpjYZ-4UjfFt62Kat6rn8K8/view?usp=sharing) |
| *[video](https://youtu.be/DKdPe-RJsn4)* | [*The Clonus, 2nd Hypothesis of Pathophysiology*](https://drive.google.com/file/d/1YOWvqNtk818HbIQVaevYI-dwIk4Bonsj/view?usp=sharing) |
| *[video](https://youtu.be/1nP8K8aW3uE)* | [*The Clonus, Two Hypotheses of Pathophysiology*](https://drive.google.com/file/d/1YOWvqNtk818HbIQVaevYI-dwIk4Bonsj/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/jqfp4e2t9jU)* | [*The Nerve Transmission through Neural Fiber, Personal View vs. International View*](https://drive.google.com/open?id=1HYCsolqvWnlD9dbmqKzKc1wSo6CnFxwn) |
| *[video](https://youtu.be/6ChlKWK4OLs)* | [*The Nerve Transmission through Neural Fiber (1), The Action Pressure Waves*](https://drive.google.com/open?id=1OPh2-qAwl2LqWLxdKY_WhJdFAKmCbbcC) |
| *[video](https://youtu.be/_ayskJT4v5c)* | [*The Nerve Transmission through Neural Fiber (2), The Action Potentials*](https://drive.google.com/open?id=1T3EBNAcw_a5S4AoTJRdbOUpY0tVCtU4Y) |
| *[video](https://youtu.be/55zCk35swKs)* | [*The Nerve Transmission through Neural Fiber (3), The Action Electrical Currents*](https://drive.google.com/open?id=1w62cTew8Rdr0nQnaBUvVQmhc2vNI7iTj) |
| *[video](https://youtu.be/5A-S1GgHqjk)* | [*The Function of Standard Action Potentials & Currents*](https://youtu.be/5A-S1GgHqjk) |
| *[video](https://youtu.be/GkSeiaw2vMk)* | [*The Three Phases of Nerve transmission*](https://drive.google.com/open?id=1qSxDdr6CutOhf-Jshr4khVVzjYiNX0vi) |
|  |  |
| *[video](https://youtu.be/OJ7B5uYBjJU)* | *[Neural Conduction in the Synapse (Innovated)](https://drive.google.com/file/d/1zsVbsJKN-JefkMdGBJcRKbBzjX4ly24S/view?usp=share_link)* |
|  |  |
| *[video](https://youtu.be/BLTTas1CF8c)* | [*Nodes of Ranvier, the Equalizers*](https://drive.google.com/open?id=1e0zPzYHnHfzR6pswcgyr5jF8rUi_yo77) |
| *[video](https://youtu.be/_uIAVuMdTvw)* | [*Nodes of Ranvier, the Functions*](https://drive.google.com/open?id=15E7qLoDIl4glTeAKBs15tvn-5Q99p1nF) |
| *[video](https://youtu.be/Aad-ynawPrs)* | [*Nodes of Ranvier, First Function*](https://youtu.be/hZ_bzG8kiFE) |
| *[video](https://youtu.be/zGRVmB0zta0)* | [*Nodes of Ranvier, Second Function*](https://youtu.be/OqH6r2qhmxY) |
| *[video](https://youtu.be/uP4QKEZsanA)* | [*Nodes of Ranvier, Third Function*](https://youtu.be/IFSf8eo8V9Y) |
| *[video](https://youtu.be/WtCIWXXP8wU)* | [*Node of Ranvier, The Anatomy*](https://youtu.be/WtCIWXXP8wU) |
|  |  |
| *[video](https://youtu.be/sEuDDBoeCIA)* | [*The Wallerian Degeneration*](https://drive.google.com/open?id=1Al56zec4gm7qWRkIN1EWuXnDu6Fa-Puz) |
| *[video](https://youtu.be/CGyaV6w5594)* | [*The Neural Regeneration*](https://drive.google.com/open?id=18k3PJaNlLYsL_B6K6Mvb1Fg5gYHJJuSN) |
| *[video](https://youtu.be/1CkexgXUv2A)* | [*The Wallerian Degeneration Attacks Motor Axons, While Avoids Sensory Axons*](https://drive.google.com/open?id=16UIXUrcsMn2_pHNeDbAlIkqjwK6vVA8R) |
|  |  |
| *[video](https://youtu.be/VRTXlfXutUs)* | [*The Sensory Receptors*](https://drive.google.com/open?id=1kii7l4bCrQ-Zey4sCO51mqZ5DSXUNO2H) |
|  |  |
| *[video](https://youtu.be/zDgKMpNvQHI)* | [*Nerve Conduction Study, Wrong Hypothesis is the Origin of the Misinterpretation (Innovated)*](https://drive.google.com/open?id=1tEuDZryjUH1aBm9D0F9eQ9ME9KkfcpJL) |
|  |  |
| *[video](https://youtu.be/ERg0rdaDsZ4)* | [*Piriformis Muscle Injection\_ Personal Approach*](https://drive.google.com/file/d/1d0p-Zx0KOSG3LO29xmdH4R-vMKBgULIf/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/K_4NgfxD18g)* | [*The Philosophy of Pain, Pain Comes First! (Innovated)*](https://drive.google.com/open?id=1HHkOUQnYOy2yrnl6h68dLt0fL0V6toDO) |
| *[video](https://youtu.be/LWLXuXbs4yI)* | [*The Philosophy of the Form (Innovated)*](https://drive.google.com/open?id=1qFVpN21binPozXFCcuGrf-io0nDLlBi3) |
| *[video](https://youtu.be/sYFlZ-2EM20)* | [*Pronator Teres Syndrome, Struthers-Like Ligament (Innovated)*](https://drive.google.com/open?id=103EXeNX0ekUNDZjyLyU1pJLaz_sSyAia) |
| *[video](https://youtu.be/wofEWjGJFS0)* | [*Ulnar Nerve, Congenital Bilateral Dislocation*](https://drive.google.com/file/d/1V2mKzzV_RjoCYoJ0LRBelClJmiRv-ZnX/view?usp=sharing) |
| *[video](https://youtu.be/9u9yDd8NIoE)* | [*Posterior Interosseous Nerve Syndrome*](https://drive.google.com/open?id=1JsmICiXRYKNbYg3CiW9YlZm4pRBJ5SOB) |
| *[video](https://youtu.be/yLyRSiN2EEo)* | [*The Multiple Sclerosis: The Causative Relationship Between The Galvanic Current & Multiple Sclerosis?*](https://drive.google.com/file/d/1M0GTyJSsuc9ZWo8FnHPensmcptwHr0mR/view?usp=sharing) |
| *[video](https://youtu.be/6XkNgguYEz4)* | [*Cauda Equina Injury, New Surgical Approach*](https://drive.google.com/file/d/1Pux0iKaOxZxkVPYAZzJmVfWeu2Oz-mVC/view?usp=sharing) |
| *[video](https://youtu.be/ZlNvPM0fh8A)* | [*Carpal Tunnel Syndrome Complicated by Complete Rupture of Median Nerve*](https://drive.google.com/file/d/1sHhWsaH47QJ5PzCDWlFd2KqiExBcONyl/view?usp=sharing) |
| *[video](https://youtu.be/rJoXOrr_IIE)* | [*Biceps Femoris' Long Head Syndrome (BFLHS)*](https://drive.google.com/file/d/14y1g0Y9ThOqYRwJOsh1e5FIuxUurYDgJ/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/2twXxX6T9zY)* | [*Barr Body, The Whole Story (Innovated)*](https://drive.google.com/open?id=1MsjgYESiWd3slc7i9s9mSiwOAnWFfrys) |
| *[video](https://youtu.be/VsmAEwMexmE)* | [*Adam's Rib and Adam's Apple, Two Faces of one Sin*](https://drive.google.com/open?id=1SEtq6SqQxNHHOn0q4TqrS2mhVumXNQv5) |
| *[video](https://youtu.be/jjl8SMMkLeA)* | [*Adam's Rib, could be the Original Sin?*](https://drive.google.com/open?id=10CEzaQ2cbFr6CQI-d8VTur7Ekq2VnyF0) |
| *[video](https://youtu.be/Ofn55E_fYJI)* | [*Barr Body, the Second Look*](https://drive.google.com/file/d/1-aKUsKo4-IIkdd9BsKK70iYutlycSwl6/view?usp=sharing) |
|  |  |
| *[video](https://www.youtube.com/watch?v=kj9OggVj50E)* | [*Who Decides the Sex of Coming Baby?*](https://drive.google.com/file/d/1fxYwPRwuwGr5sv183v1m7LEwx24jpjf0/view?usp=sharing) |
| *[video](https://youtu.be/byGU-uDGAzM)* | [*Boy or Girl, Mother Decides!*](https://drive.google.com/open?id=1Mq5x5lqJ1givipdwAjcFyHAkEqdiJIdH) |
| *[video](https://youtu.be/L0Odkd-9ZHY)* | [*Oocytogenesis*](https://drive.google.com/file/d/1UR57GGSvkorIaZCrBbjwWT2FCngu4x21/view?usp=sharing) |
| *[video](https://youtu.be/AA252qjldLk)* | [*Spermatogenesis*](https://drive.google.com/file/d/1dFhcEwK7X9_80oogfleEqy34PmuYHTb6/view?usp=sharing) |
| *[video](https://youtu.be/kQQxHeSzUn4)* | [*This Woman Can Only Give Birth to Female Children*](https://drive.google.com/file/d/1RLsOrpSIqwaR8FpwVi4fg5ep1G5JqIg_/view?usp=sharing) |
| *[video](https://youtu.be/PYJtcfPs8mI)* | [*This Woman Can Only Give Birth to Male Children*](https://drive.google.com/file/d/1AuNzWbVMNIb48U34jkaDUveEqXXiPZGp/view?usp=sharing) |
| *[video](https://youtu.be/__xbNXe8qNU)* | [*This Woman Can Give Birth to Female Children More Than to Male Children*](https://drive.google.com/file/d/1vTtka8UuJNytX_ENOuMNnf3Tdjlh62pu/view?usp=sharing) |
| *[video](https://youtu.be/M5bRtMwcj94)* | [*This Woman Can Give Birth to Male Children More Than to Female Children*](https://drive.google.com/file/d/1D91xR5HCmVGdOSTBEiWOV6nz2gvxxrpS/view?usp=sharing) |
| *[video](https://youtu.be/BXtbeYa6Nek)* | [*This Woman Can Equally Give Birth to Male Children & to Female Children*](https://drive.google.com/file/d/1EkNaarumQgOwxLQicLFd8Ab4nGWWzej9/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/zmAQkMtKkME)* | [*Eve Saved Human Identity; Adam Ensured Human Adaptation*](https://drive.google.com/file/d/1UDzf2KjgQgOFEfJG9eKlIdrrpgafkNls/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/H6GaaNu7U3s)* | [*Coronavirus (Covid-19): After Humiliation, Is Targeting Our Genes*](https://drive.google.com/file/d/1qlQnlS-PBrSVan0HWubuMQzwnFwFP9UY/view?usp=sharing) |
| *[video](https://youtu.be/H6GaaNu7U3s)* | [*Coronavirus (Covid-19): After Humiliation, Is Targeting Our Genes*](https://drive.google.com/file/d/1qlQnlS-PBrSVan0HWubuMQzwnFwFP9UY/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/ioktmQKsUNM)* | [*The Black Hole is a (the) Falling Star?*](https://drive.google.com/open?id=1yYTgQsQy08U2l9IurwiCX543yakWkIok) |
| *[video](https://youtu.be/QiL2et83B6Q)* | [*Mitosis in Animal Cell*](https://drive.google.com/file/d/1pekYoORykP7Bbl6o-VMAI8pJPcj1JVYh/view?usp=sharing) |
| *[video](https://youtu.be/PHOY1qlw0AM)* | [*Meiosis*](https://drive.google.com/file/d/1-a1NFgX0ndKYY6GRrEBJSmCpEBiOXnzx/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/8OIvbXZ0xM4)* | [*Universe Creation, Hypothesis of Continuous Cosmic Nebula*](https://drive.google.com/file/d/1Hs27xIEXwX7Yb9a5XvoiM_Qk5o3ufmUg/view?usp=sharing) |
| *[video](https://youtu.be/UPyZWXSon3Y)* | [*Circulating Sweepers*](https://drive.google.com/file/d/1FIZvJF67F5te_ye8V1mZDx_aVtF2k8tc/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/wB1F9p8PICE)* | [*Pneumatic Petrous, Bilateral Temporal Hyperpneumatization*](https://drive.google.com/file/d/1lbewP5eC703bxcRw0VZV2W1x4OY9oStV/view?usp=sharing) |
| *[video](https://youtu.be/Z2D0HCZgDqY)* | [*Congenital Bilateral Thenar Hypoplasia*](https://drive.google.com/file/d/1UVKs2UyHbSpiwbEqWugkA881FUIot06M/view?usp=sharing) |
| *[video](https://youtu.be/pftu_ZNUy9w)* | [*Ulnar Dimelia, Mirror hand Deformity*](https://drive.google.com/file/d/15EJ_xT13PAwDhw3GEypnt0gqBzvzvVug/view?usp=sharing) |
|  |  |
| *[video](https://youtu.be/72J4c7Gof-g)* | [*Surgical Restoration of a Smile by Grafting a Segment of the Gracilis Muscle to the Face*](https://drive.google.com/file/d/14AZMJJjeaVTdPn3wxPn7e2XqlRGdOPzq/view?usp=drive_link) |
| *[video](https://youtu.be/Dn4vEpJYaSg)* | [*Mandible Reconstruction Using Free Fibula Flap*](https://drive.google.com/file/d/1Nv2YLBSc5TC7VFXBUVp9KAga4eUQmqfg/view?usp=sharing) |
| *[video](https://youtu.be/wLhKIBIb3gA)* | [*Presacral Schwannoma*](https://drive.google.com/file/d/1EzZ10x4KR3ep0Xp4Ldq1f2u9u8SECNP9/view?usp=sharing) |
| *[video](https://youtu.be/-q9DZFaKwF8)* | *[Liver Hemangioma: Urgent Surgery of Giant Liver Hemangioma](https://drive.google.com/file/d/1ui0t-Ao-st4GeijhyaXc1Hjbj9uYaaKy/view?usp=sharing)*  *[Due to Intra-Tumor Bleeding](https://drive.google.com/file/d/1ui0t-Ao-st4GeijhyaXc1Hjbj9uYaaKy/view?usp=sharing)* |
| *[video](https://youtu.be/MQShaLlN-Y0)* | [*Free Para Scapular Flap (FPSF) for Skin Reconstruction*](https://drive.google.com/file/d/1Z1hkl2E6N95ld1tXIYaTfvL6lw4mqQ1P/view?usp=sharing) |
| *[video](https://youtu.be/4dC-2vNDGpI)* | [*Claw Hand Deformity (Brand Operation*](https://youtu.be/4dC-2vNDGpI)*)* |
| *[video](https://youtu.be/fDjXCSHGuvA)* | [*Algodystrophy Syndrome Complicated by Constricting Ring at the Proximal Border of the Edema*](https://drive.google.com/file/d/1D-h2Ck-VdsJyA5dukbliwXwOh_-t2HUz/view?usp=sharing) |
| *[video](https://youtu.be/OKv1iogYIMA)* | [*Non- Traumatic Non- Embolic Acute Thrombosis of Radial Artery (Buerger’s Disease)*](https://drive.google.com/file/d/1ZaKpD0XVdQxY6FR44PyBeFfv_RKzXj_x/view?usp=sharing) |
| *[video](https://youtu.be/2hJw4jKCyfg)* | [*Isolated Axillary Tuberculosis Lymphadenitis*](https://drive.google.com/file/d/1aC9W8XO6UNHljyS3iAwlP2fiuH85D3Lr/view?usp=sharing) |
| *[video](https://youtu.be/rKabisSM5MQ)* | [*The Iliopsoas Tendonitis... The Snapping Hip*](https://drive.google.com/file/d/1NUslspZfeaO5W4Hu2bJPNjq7syQlgQ2t/view?usp=drive_link) |
|  |  |
| *videoTo read the article in Arabic, click on* | |
|  |  |
| *[video](https://drive.google.com/file/d/1ecXmVhdioysMTgf2hA9OyJ1c4QS70U1-/view?usp=sharing)* | [*The New Frankenstein Monster*](https://drive.google.com/file/d/13_gS1VyTy3jXiBL6JXK-ECtDE1gMLGo6/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1m_O7jCbrw-oT98vb4y2hs_ztznRC5pat/view?usp=sharing)* | [*The Lone Wolf*](https://drive.google.com/file/d/1B0osXS1SW7h-xfWwCN8DN2Nk4QF4eqB5/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1fpXPiIpTxRl3IT_dMeLzFj1ZXd4Bo6p1/view?usp=sharing)* | [*The Delirium of Night and Day*](https://drive.google.com/file/d/1pKdYMAPUPrdtWBXrRXYZYlGIPg3G9Xhb/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1dOsuna7dES5isqemZgkfpJH_HIyLsiAs/view?usp=sharing)* | [*The Delirium of the Economy*](https://drive.google.com/file/d/1OtDMBt439gOf12SFE73W0Re09ldEuU9U/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/1yo1yDuNxdD7i_Edi9CnaCUjmp0_A85fM/view?usp=drive_link)* | [*Ovaries in a Secure Corner… Testicles in a Humble Sac: An Inquiry into the Function of Form*](https://drive.google.com/file/d/1DeALuwHlQ_kThaVk--W_P04b9MksjiWD/view?usp=drive_link) |
| *[video](https://drive.google.com/file/d/17HUzsFJW5-QTSNdM-KrrMb3VDi9erYyp/view?usp=sharing)* | [*Eve Preserves Humanity’s Blueprint; Adam Drives Its Evolution*](https://drive.google.com/file/d/19kB5tQ9UIeaen29iyOZwZlgqG0r3IynI/view?usp=drive_link) |

*27/6/2020*