WEBVTT

- NOTE duration:"00:16:20"
- NOTE recognizability:0.898
- NOTE language:en-us
- NOTE Confidence: 0.9185471
- $00:00:10.410 \rightarrow 00:00:12.738$  Perfect we can see your slides right.
- NOTE Confidence: 0.9449614
- $00{:}00{:}18.220 \dashrightarrow 00{:}00{:}18.670$  OK.
- NOTE Confidence: 0.91799303625
- 00:00:20.980 --> 00:00:24.804 So hi, my name is Tom Lincoln neurosurgeon
- NOTE Confidence: 0.91799303625
- $00:00:24.810 \rightarrow 00:00:27.310$  heavy endovascular based practice
- NOTE Confidence: 0.91799303625
- $00:00:27.310 \rightarrow 00:00:30.617$  here at North Shore in Long Island.
- NOTE Confidence: 0.91799303625
- 00:00:30.617 --> 00:00:31.962 One of the major centers
- NOTE Confidence: 0.91799303625
- $00:00:31.962 \longrightarrow 00:00:33.588$  in the north wall system.
- NOTE Confidence: 0.91799303625
- 00:00:33.590 --> 00:00:35.746 I was asked to talk today about
- NOTE Confidence: 0.91799303625
- 00:00:35.746 --> 00:00:37.218 middle meningeal artery embolization
- NOTE Confidence: 0.91799303625
- $00{:}00{:}37{.}218$  -->  $00{:}00{:}39{.}150$  for chronic subdural hematoma.
- NOTE Confidence: 0.91799303625
- 00:00:39.150 --> 00:00:42.470 A little bit of a change of subject.
- NOTE Confidence: 0.91799303625
- 00:00:42.470 00:00:44.396 In the stroke net conference here,
- NOTE Confidence: 0.91799303625
- $00:00:44.400 \longrightarrow 00:00:46.218$  but I think.
- NOTE Confidence: 0.91799303625

 $00:00:46.218 \rightarrow 00:00:48.036$  Uhm, it becomes.

NOTE Confidence: 0.91799303625

 $00:00:48.040 \rightarrow 00:00:50.458$  It's becoming more and more relevant

NOTE Confidence: 0.91799303625

 $00{:}00{:}50{.}458 \dashrightarrow 00{:}00{:}53{.}202$  really in as more and more places are

NOTE Confidence: 0.91799303625

 $00:00:53.202 \rightarrow 00:00:55.725$  doing this kind of intervention and a

NOTE Confidence: 0.91799303625

 $00{:}00{:}55{.}725 \dashrightarrow 00{:}00{:}57{.}600$  vascular option for subdural hematoma,

NOTE Confidence: 0.91799303625

 $00:00:57.600 \rightarrow 00:00:59.859$  we have a few clinical trials going on here.

NOTE Confidence: 0.91799303625

 $00{:}00{:}59.860 \dashrightarrow 00{:}01{:}02.730$  As one of them is multi institutional

NOTE Confidence: 0.91799303625

 $00:01:02.730 \longrightarrow 00:01:04.050$  will get into at the end.

NOTE Confidence: 0.93211890777778

 $00{:}01{:}06{.}410 \dashrightarrow 00{:}01{:}08{.}795$  So it's kind of a lot to get in,

NOTE Confidence: 0.932118907777778

 $00:01:08.800 \rightarrow 00:01:10.740$  get through in 15 minutes,

NOTE Confidence: 0.932118907777778

00:01:10.740 --> 00:01:12.602 but so I might go pretty quickly

NOTE Confidence: 0.932118907777778

00:01:12.602 --> 00:01:13.879 through some parts of this,

NOTE Confidence: 0.932118907777778

 $00{:}01{:}13.880 \dashrightarrow 00{:}01{:}16.043$  but a little bit of the background

NOTE Confidence: 0.932118907777778

00:01:16.043 --> 00:01:19.103 here so you know why do we need other

NOTE Confidence: 0.93211890777778

 $00:01:19.103 \dashrightarrow 00:01:20.870$  methods to treat subdural hematoma

NOTE Confidence: 0.932118907777778

 $00:01:20.870 \longrightarrow 00:01:23.131$  and and one of the major issues

 $00:01:23.131 \longrightarrow 00:01:24.980$  with it is that it's classically

NOTE Confidence: 0.932118907777778

 $00{:}01{:}24.980 \dashrightarrow 00{:}01{:}26.480$  very difficult pathology to treat,

NOTE Confidence: 0.932118907777778

 $00:01:26.480 \dashrightarrow 00:01:28.358$  so there's very high recurrence rates.

NOTE Confidence: 0.932118907777778

00:01:28.360 - 00:01:29.518 Literature says anywhere

NOTE Confidence: 0.932118907777778

 $00:01:29.518 \rightarrow 00:01:32.762$  between kind of 10 to 30% or so,

NOTE Confidence: 0.932118907777778

 $00:01:32.762 \longrightarrow 00:01:35.067$  and it tends to affect.

NOTE Confidence: 0.932118907777778

 $00:01:35.070 \rightarrow 00:01:38.614$  Older and sicker patients, and as we know,

NOTE Confidence: 0.932118907777778

 $00:01:38.620 \longrightarrow 00:01:40.750$  the population is aging in general,

NOTE Confidence: 0.93211890777778

 $00:01:40.750 \longrightarrow 00:01:42.390$  so this is increasing incidence.

NOTE Confidence: 0.932118907777778

00:01:42.390 --> 00:01:43.190 In general,

NOTE Confidence: 0.932118907777778

 $00:01:43.190 \longrightarrow 00:01:45.190$  chronic subdural hematoma that is,

NOTE Confidence: 0.932118907777778

 $00{:}01{:}45{.}190 \dashrightarrow 00{:}01{:}46{.}620$  and this tends to affect

NOTE Confidence: 0.93211890777778

 $00:01:46.620 \longrightarrow 00:01:47.764$  patients who are older,

NOTE Confidence: 0.93211890777778

 $00{:}01{:}47.770 \dashrightarrow 00{:}01{:}49.021$  have many comorbidities,

NOTE Confidence: 0.932118907777778

 $00{:}01{:}49{.}021 \dashrightarrow 00{:}01{:}51{.}106$  tend to be on anticoagulation

00:01:51.106 - 00:01:53.089 and any platelet agents.

NOTE Confidence: 0.932118907777778

 $00:01:53.090 \rightarrow 00:01:56.074$  So it's certainly helpful to have a less

NOTE Confidence: 0.932118907777778

 $00:01:56.074 \rightarrow 00:01:58.230$  invasive option compared to surgery.

NOTE Confidence: 0.932118907777778

 $00:01:58.230 \longrightarrow 00:02:00.145$  So just to go through

NOTE Confidence: 0.932118907777778

 $00:02:00.145 \longrightarrow 00:02:02.060$  why we think this works.

NOTE Confidence: 0.932118907777778

00:02:02.060 --> 00:02:03.824 So what happens when you have

NOTE Confidence: 0.93211890777778

 $00:02:03.824 \longrightarrow 00:02:05.734$  sort of this blood clot that

NOTE Confidence: 0.932118907777778

 $00:02:05.734 \rightarrow 00:02:07.399$  forms in the subdural space?

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 $00:02:07.400 \dashrightarrow 00:02:09.115$  And traditionally this is this

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 $00:02:09.115 \longrightarrow 00:02:10.830$  is initially caused by the

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 $00:02:10.890 \longrightarrow 00:02:12.725$  tearing of bridging veins and

NOTE Confidence: 0.932118907777778

 $00:02:12.725 \longrightarrow 00:02:14.560$  acute hemorrhage in this space.

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 $00{:}02{:}14.560 \dashrightarrow 00{:}02{:}16.996$  But the the brain's reaction to it

NOTE Confidence: 0.932118907777778

00:02:16.996 --> 00:02:19.277 really is an inflammatory reaction

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 $00:02:19.277 \longrightarrow 00:02:21.931$  where you have infiltrate infiltration

NOTE Confidence: 0.932118907777778

00:02:21.931 - > 00:02:23.586 of inflammatory cells you have.

 $00{:}02{:}23.590 \dashrightarrow 00{:}02{:}24.974$  If I burn a lysis of the clot,

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00:02:24.980 --> 00:02:27.020 it's trying to break it down into a

NOTE Confidence: 0.932118907777778

 $00:02:27.020 \rightarrow 00:02:29.901$  more liquid type substance and really,

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 $00:02:29.901 \rightarrow 00:02:33.520$  there's this in capsulation of this hematoma.

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 $00{:}02{:}33.520 \dashrightarrow 00{:}02{:}36.004$  And formation of a membrane around

NOTE Confidence: 0.932118907777778

 $00:02:36.004 \rightarrow 00:02:38.182$  and also through it which we

NOTE Confidence: 0.932118907777778

 $00:02:38.182 \longrightarrow 00:02:39.748$  see in surgery in these chronic

NOTE Confidence: 0.93211890777778

00:02:39.748 --> 00:02:41.580 kind of membranous flocculated,

NOTE Confidence: 0.93211890777778

 $00{:}02{:}41.580 \dashrightarrow 00{:}02{:}44.780$  subdural hematomas membrane itself

NOTE Confidence: 0.932118907777778

 $00{:}02{:}44.780 \dashrightarrow 00{:}02{:}47.980$  becomes vascularized so there's

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 $00{:}02{:}47.980 \dashrightarrow 00{:}02{:}49.936$  no release of all these vascular

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 $00{:}02{:}49{.}936 \dashrightarrow 00{:}02{:}50{.}914$  endothelial growth factors.

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 $00:02:50.920 \dashrightarrow 00:02:53.304$  And if you take some of this membrane

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 $00:02:53.304 \dashrightarrow 00:02:55.582$  at surgery and send it to pathology

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 $00{:}02{:}55{.}582 \dashrightarrow 00{:}02{:}57{.}710$  we actually have found that these

 $00{:}02{:}57{.}710 \dashrightarrow 00{:}02{:}59{.}945$  vessels within this membrane itself

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 $00{:}02{:}59{.}945 \dashrightarrow 00{:}03{:}01{.}733$  inflammatory cells and there's

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 $00:03:01.740 \longrightarrow 00:03:04.086$  high staining for veg F so.

NOTE Confidence: 0.932118907777778

 $00:03:04.090 \longrightarrow 00:03:05.765$  It really turns out that

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 $00{:}03{:}05{.}765 \dashrightarrow 00{:}03{:}06{.}770$  chronic subdural hematoma,

NOTE Confidence: 0.932118907777778

 $00:03:06.770 \longrightarrow 00:03:08.046$  as opposed to acute,

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 $00:03:08.046 \longrightarrow 00:03:09.960$  is really it really becomes an

NOTE Confidence: 0.932118907777778

 $00:03:10.031 \rightarrow 00:03:12.339$  arterial pathology because the the

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 $00:03:12.339 \rightarrow 00:03:14.304$  new vascularization of this membrane

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 $00:03:14.304 \rightarrow 00:03:17.220$  leads to these leaky kind of fragile

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 $00{:}03{:}17{.}220 \dashrightarrow 00{:}03{:}19{.}713$  vessels that repeatedly bleed in sort of

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 $00:03:19.713 \dashrightarrow 00:03:21.867$  ooze into this collection over time.

NOTE Confidence: 0.932118907777778

 $00{:}03{:}21.870 \dashrightarrow 00{:}03{:}23.566$  And while some chronic

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00:03:23.566 --> 00:03:25.686 subdural's go away over time,

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 $00:03:25.690 \longrightarrow 00:03:27.174$  the body is able to resorb it,

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 $00:03:27.180 \longrightarrow 00:03:27.694$  others don't,

 $00:03:27.694 \rightarrow 00:03:29.493$  and the thought now is that it's

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 $00:03:29.493 \longrightarrow 00:03:31.346$  this repeated sort of kind of

NOTE Confidence: 0.932118907777778

 $00:03:31.346 \longrightarrow 00:03:32.578$  rebleeding into this collection

NOTE Confidence: 0.932118907777778

 $00:03:32.578 \longrightarrow 00:03:34.197$  that leads to the persistence.

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 $00:03:34.200 \rightarrow 00:03:36.517$  And recurrence, and many of these cases.

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 $00:03:36.520 \longrightarrow 00:03:37.772$  So you see here,

NOTE Confidence: 0.932118907777778

 $00:03:37.772 \longrightarrow 00:03:39.337$  and generally when you have

NOTE Confidence: 0.93211890777778

 $00:03:39.337 \rightarrow 00:03:41.289$  a subdural that persists,

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 $00:03:41.290 \longrightarrow 00:03:43.796$  the thought is that this process outweighs

NOTE Confidence: 0.932118907777778

 $00:03:43.796 \longrightarrow 00:03:45.759$  the brains ability to resore bit.

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 $00{:}03{:}45{.}760 \dashrightarrow 00{:}03{:}47{.}518$  And where does this the vasculature

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 $00{:}03{:}47{.}518$  -->  $00{:}03{:}49{.}511$  come from in this membrane or the

NOTE Confidence: 0.932118907777778

 $00:03:49.511 \longrightarrow 00:03:51.638$  only place it can come from is is

NOTE Confidence: 0.932118907777778

 $00{:}03{:}51{.}638$  -->  $00{:}03{:}53{.}360$  the adjacent dura and which comes

NOTE Confidence: 0.932118907777778

 $00:03:53.360 \rightarrow 00:03:54.950$  from the middle meningeal artery,

 $00:03:54.950 \rightarrow 00:03:56.750$  so essentially by shutting down

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 $00:03:56.750 \longrightarrow 00:03:58.829$  the blood supply to the from

NOTE Confidence: 0.932118907777778

 $00:03:58.829 \rightarrow 00:04:00.077$  the middle meningeal artery.

NOTE Confidence: 0.932118907777778

 $00:04:00.080 \longrightarrow 00:04:02.210$  To this membrane you arrest

NOTE Confidence: 0.93211890777778

 $00:04:02.210 \longrightarrow 00:04:04.340$  this process of this repeated.

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 $00{:}04{:}04{.}340 \dashrightarrow 00{:}04{:}05{.}480$  Bleeding and you can.

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 $00:04:05.480 \longrightarrow 00:04:07.190$  You can in effect tip the

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 $00{:}04{:}07{.}251 \dashrightarrow 00{:}04{:}08{.}883$  scales there to now allow the

NOTE Confidence: 0.862052760434783

 $00:04:08.883 \longrightarrow 00:04:10.890$  rain to be able to resolve it.

NOTE Confidence: 0.862052760434783

 $00:04:10.890 \longrightarrow 00:04:12.642$  So that that's the theory behind

NOTE Confidence: 0.862052760434783

 $00:04:12.642 \longrightarrow 00:04:14.567$  how this works, and there's some

NOTE Confidence: 0.862052760434783

 $00:04:14.567 \longrightarrow 00:04:17.252$  support to a lot of this in in,

NOTE Confidence: 0.862052760434783

 $00{:}04{:}17.252 \dashrightarrow 00{:}04{:}18.220$  in the angiography and

NOTE Confidence: 0.862052760434783

 $00:04:18.220 \longrightarrow 00:04:19.430$  and some of the imaging.

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00:04:19.430 --> 00:04:22.153 So you know when you do a

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 $00:04:22.153 \rightarrow 00:04:23.920$  selective middle meningeal artery.

- NOTE Confidence: 0.862052760434783
- 00:04:23.920 --> 00:04:26.118 A angiography you could see we have
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}26.118 \dashrightarrow 00{:}04{:}28.488$  this kind of distal what we call a
- NOTE Confidence: 0.862052760434783
- $00:04:28.488 \rightarrow 00:04:29.940$  cotton wool like appearance of the
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}29{.}996 \dashrightarrow 00{:}04{:}31{.}676$  of the distal branches of the man.
- NOTE Confidence: 0.862052760434783
- 00:04:31.680 00:04:35.376 This wispy NIS that you see where
- NOTE Confidence: 0.862052760434783
- $00:04:35.380 \longrightarrow 00:04:37.298$  there could be supply to some of
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}37{.}298 \dashrightarrow 00{:}04{:}39{.}490$  this vast new vascularised membrane.
- NOTE Confidence: 0.862052760434783
- 00:04:39.490 --> 00:04:41.248 Uhm, you see this kind of
- NOTE Confidence: 0.862052760434783
- 00:04:41.248 --> 00:04:42.810 leakiness into the subdural space,
- NOTE Confidence: 0.862052760434783
- 00:04:42.810 -> 00:04:44.962 and in many times when you do the
- NOTE Confidence: 0.862052760434783
- 00:04:44.962 --> 00:04:46.849 post-op scan after an embolization,
- NOTE Confidence: 0.862052760434783
- 00:04:46.850 --> 00:04:49.484 you actually get this kind of
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}49{.}484 \dashrightarrow 00{:}04{:}51{.}240$  subtle increased in density
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}51{.}317 \dashrightarrow 00{:}04{:}53{.}547$  in the entire subdural space.
- NOTE Confidence: 0.862052760434783
- $00{:}04{:}53{.}550 \dashrightarrow 00{:}04{:}54{.}990$  Which the thought is that
- NOTE Confidence: 0.862052760434783

 $00:04:54.990 \longrightarrow 00:04:56.142$  this is actually contrast.

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 $00{:}04{:}56{.}150 \dashrightarrow 00{:}04{:}58{.}604$  That kind of leaks in through

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 $00{:}04{:}58{.}604 \dashrightarrow 00{:}05{:}00{.}240$  this this leaky vasculature.

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 $00:05:00.240 \rightarrow 00:05:02.608$  And then finally, one of my favorite images.

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 $00{:}05{:}02.610 \dashrightarrow 00{:}05{:}05{.}742$  If you look at an AP projection of a

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 $00{:}05{:}05{.}742 \dashrightarrow 00{:}05{:}08{.}140$  selective and then a injection here,

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 $00:05:08.140 \rightarrow 00:05:10.226$  it really outlines perfectly what you see.

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 $00{:}05{:}10{.}230 \dashrightarrow 00{:}05{:}11{.}590$  This entire subdural hematoma

NOTE Confidence: 0.862052760434783

 $00{:}05{:}11.590 \dashrightarrow 00{:}05{:}13.290$  on the kernel image here.

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 $00:05:13.290 \dashrightarrow 00:05:15.586$  So it's you really see this membrane

NOTE Confidence: 0.862052760434783

 $00{:}05{:}15{.}590 \dashrightarrow 00{:}05{:}17{.}930$  surrounding the the hematoma

NOTE Confidence: 0.862052760434783

 $00:05:17.930 \longrightarrow 00:05:20.855$  that's being supplied by the.

NOTE Confidence: 0.862052760434783

 $00{:}05{:}20{.}860 \dashrightarrow 00{:}05{:}22{.}757$  So when I was a fellow training

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 $00{:}05{:}22.757 \dashrightarrow 00{:}05{:}24.840$  at at Cornell with Doctor Nachman,

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00:05:24.840 --> 00:05:27.138 who really kind of pioneered this,

NOTE Confidence: 0.862052760434783

 $00:05:27.140 \longrightarrow 00:05:29.814$  we started back in 2016 or so.

- NOTE Confidence: 0.862052760434783
- $00:05:29.820 \longrightarrow 00:05:31.626$  Here's the example of the first
- NOTE Confidence: 0.862052760434783
- $00:05:31.626 \longrightarrow 00:05:33.303$  five patients that we treated
- NOTE Confidence: 0.862052760434783
- $00:05:33.303 \longrightarrow 00:05:34.539$  as primary treatment.
- NOTE Confidence: 0.862052760434783
- 00:05:34.540 --> 00:05:37.600 So you know, prior to this,
- NOTE Confidence: 0.862052760434783
- 00:05:37.600 --> 00:05:39.615 it really only been described
- NOTE Confidence: 0.862052760434783
- $00:05:39.615 \rightarrow 00:05:41.630$  internationally as kind of salvage
- NOTE Confidence: 0.862052760434783
- $00:05:41.698 \rightarrow 00:05:44.034$  therapy for multi recurrent subdural's.
- NOTE Confidence: 0.862052760434783
- $00:05:44.034 \rightarrow 00:05:48.160$  This was used for patients that essentially
- NOTE Confidence: 0.862052760434783
- $00:05:48.160 \dashrightarrow 00:05:50.720$  we were able to get to avoid surgery.
- NOTE Confidence: 0.862052760434783
- $00:05:50.720 \rightarrow 00:05:51.192$  Altogether,
- NOTE Confidence: 0.862052760434783
- $00:05:51.192 \longrightarrow 00:05:54.024$  so one might say initially well,
- NOTE Confidence: 0.862052760434783
- $00:05:54.030 \rightarrow 00:05:55.574$  many sub tools go away on their own.
- NOTE Confidence: 0.862052760434783
- $00:05:55.580 \longrightarrow 00:05:57.379$  So how do you know that these
- NOTE Confidence: 0.862052760434783
- $00{:}05{:}57{.}379 \dashrightarrow 00{:}05{:}58{.}928$  hematomas wouldn't have just went away?
- NOTE Confidence: 0.862052760434783
- $00:05:58.930 \dashrightarrow 00:06:00.425$  Well, these patients were selected
- NOTE Confidence: 0.862052760434783

 $00:06:00.425 \rightarrow 00:06:02.446$  because they show that they failed

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 $00:06:02.446 \rightarrow 00:06:03.859$  conservative management already,

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 $00:06:03.860 \rightarrow 00:06:07.160$  so this was progression of their subdural's.

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 $00:06:07.160 \rightarrow 00:06:10.200$  Despite observations, steroids, etc.

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 $00{:}06{:}10.200 \dashrightarrow 00{:}06{:}12.160$  And we did the embolization.

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 $00{:}06{:}12.160 \dashrightarrow 00{:}06{:}13.600$  You see, many of them.

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00:06:13.600 --> 00:06:15.728 The subdural completely went away over time,

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 $00:06:15.730 \rightarrow 00:06:17.914$  and others it almost entirely went away.

NOTE Confidence: 0.862052760434783

 $00{:}06{:}17{.}920 \dashrightarrow 00{:}06{:}20{.}608$  And all five were able to avoid

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 $00:06:20.608 \rightarrow 00:06:22.800$  any further surgical intervention.

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 $00{:}06{:}22.800 \dashrightarrow 00{:}06{:}24.431$  So we we went along and then

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 $00:06:24.431 \longrightarrow 00:06:26.207$  the first 60 cases that we did,

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 $00{:}06{:}26{.}210 \dashrightarrow 00{:}06{:}28{.}642$  we published a couple of years ago and

NOTE Confidence: 0.862052760434783

 $00{:}06{:}28.642 \dashrightarrow 00{:}06{:}30.867$  and really show that there are three

NOTE Confidence: 0.862052760434783

 $00:06:30.870 \rightarrow 00:06:32.844$  major categories where this can be useful.

NOTE Confidence: 0.862052760434783

00:06:32.850 --> 00:06:33.768 So number one,

00:06:33.768 --> 00:06:35.910 it can be used instead of surgery

NOTE Confidence: 0.862052760434783

 $00{:}06{:}35{.}983 \dashrightarrow 00{:}06{:}38{.}245$  in certain patients that are meet

NOTE Confidence: 0.862052760434783

 $00{:}06{:}38.245 \dashrightarrow 00{:}06{:}40.650$  certain criteria which we can get into.

NOTE Confidence: 0.862052760434783

 $00:06:40.650 \dashrightarrow 00:06:43.226$  It can be used as to treat recurrence

NOTE Confidence: 0.862052760434783

 $00{:}06{:}43.226 \dashrightarrow 00{:}06{:}45.427$  after surgical evacuation and even there

NOTE Confidence: 0.862052760434783

 $00:06:45.427 \rightarrow 00:06:47.910$  might be this prophylactic used to it.

NOTE Confidence: 0.862052760434783

 $00:06:47.910 \longrightarrow 00:06:49.374$  So say you have someone who

NOTE Confidence: 0.862052760434783

00:06:49.374 --> 00:06:51.017 has surgery and maybe you think

NOTE Confidence: 0.862052760434783

 $00{:}06{:}51{.}017 \dashrightarrow 00{:}06{:}52{.}547$  they're high risk for recurrence.

NOTE Confidence: 0.862052760434783

00:06:52.550 --> 00:06:54.737 So you could sort of fend it off by

NOTE Confidence: 0.862052760434783

 $00:06:54.737 \rightarrow 00:06:56.887$  doing this immediately after surgery,

NOTE Confidence: 0.862052760434783

 $00{:}06{:}56{.}890 \dashrightarrow 00{:}06{:}59{.}333$  and in this study of 60 patients

NOTE Confidence: 0.862052760434783

 $00:06:59.333 \longrightarrow 00:07:01.010$  we were able to help

NOTE Confidence: 0.92688179444445

 $00:07:01.010 \longrightarrow 00:07:03.746 91\%$  of these patients avoid any

NOTE Confidence: 0.92688179444445

 $00{:}07{:}03.746 \dashrightarrow 00{:}07{:}05.114$  further surgical treatment.

 $00:07:05.120 \longrightarrow 00:07:06.915$  And that's what we defined

NOTE Confidence: 0.92688179444445

00:07:06.915 --> 00:07:08.710 as the the primary endpoint.

NOTE Confidence: 0.92688179444445

 $00:07:08.710 \longrightarrow 00:07:10.050$  And really, you know,

NOTE Confidence: 0.92688179444445

00:07:10.050 --> 00:07:12.520 almost 70% overall also had a

NOTE Confidence: 0.92688179444445

 $00:07:12.520 \longrightarrow 00:07:15.220$  reduction in size greater than 50%.

NOTE Confidence: 0.92688179444445

 $00:07:15.220 \longrightarrow 00:07:17.470$  So, uhm. This is just describing

NOTE Confidence: 0.92688179444445

 $00{:}07{:}17{.}470 \dashrightarrow 00{:}07{:}19{.}800$  a little bit more technique.

NOTE Confidence: 0.92688179444445

 $00:07:19.800 \longrightarrow 00:07:21.420$  There's been a few other larger

NOTE Confidence: 0.92688179444445

 $00:07:21.420 \longrightarrow 00:07:23.507$  studies now and really two of the

NOTE Confidence: 0.92688179444445

 $00{:}07{:}23.507 \dashrightarrow 00{:}07{:}25.310$  best papers that I chose to share.

NOTE Confidence: 0.92688179444445

 $00{:}07{:}25.310 \dashrightarrow 00{:}07{:}26.570$  Here's one that was published

NOTE Confidence: 0.92688179444445

 $00:07:26.570 \longrightarrow 00:07:27.830$  last year where they did.

NOTE Confidence: 0.926881794444445

00:07:27.830 --> 00:07:29.185 It was a multicenter but

NOTE Confidence: 0.92688179444445

00:07:29.185 --> 00:07:29.998 non randomized trial.

NOTE Confidence: 0.92688179444445

 $00{:}07{:}30{.}000 \dashrightarrow 00{:}07{:}31{.}688$  So there 154 embolization

NOTE Confidence: 0.92688179444445

 $00:07:31.688 \longrightarrow 00:07:34.970$  is done in 138 patients.

 $00:07:34.970 \longrightarrow 00:07:38.076$  There they defined a 93.5% success rate.

NOTE Confidence: 0.92688179444445

00:07:38.076 --> 00:07:39.240 Again, same thing,

NOTE Confidence: 0.92688179444445

 $00:07:39.240 \rightarrow 00:07:41.538$  the primary endpoint being did any

NOTE Confidence: 0.92688179444445

 $00:07:41.540 \longrightarrow 00:07:43.688$  any of these patients require an

NOTE Confidence: 0.92688179444445

 $00{:}07{:}43.688 \dashrightarrow 00{:}07{:}45.310$  additional treatment which would

NOTE Confidence: 0.92688179444445

 $00:07:45.310 \longrightarrow 00:07:47.560$  be surgery so very successful?

NOTE Confidence: 0.92688179444445

00:07:47.560 --> 00:07:50.150 And in this multicenter trial,

NOTE Confidence: 0.92688179444445

 $00:07:50.150 \longrightarrow 00:07:52.040$  right around that 70% mark again.

NOTE Confidence: 0.92688179444445

 $00:07:52.040 \longrightarrow 00:07:54.290$  Also for greater than 50%

NOTE Confidence: 0.92688179444445

 $00:07:54.290 \longrightarrow 00:07:56.302$  reduction in size overall.

NOTE Confidence: 0.92688179444445

 $00:07:56.302 \longrightarrow 00:07:58.314$  Uhm complication rate low.

NOTE Confidence: 0.92688179444445

 $00{:}07{:}58.320 \dashrightarrow 00{:}08{:}00.360$  I mean they wrote 9% because

NOTE Confidence: 0.92688179444445

 $00:08:00.360 \rightarrow 00:08:02.960$  that included those that actually

NOTE Confidence: 0.92688179444445

 $00{:}08{:}02{.}960 \dashrightarrow 00{:}08{:}04{.}602$  failed treatment and head aches.

NOTE Confidence: 0.92688179444445

 $00{:}08{:}04{.}602 \dashrightarrow 00{:}08{:}07{.}422$  So if you if you knock those two out

 $00:08:07.422 \rightarrow 00:08:09.462$  there was there was one temporary

NOTE Confidence: 0.92688179444445

 $00{:}08{:}09{.}462 \dashrightarrow 00{:}08{:}11{.}869$  facial droop in one seizure so overall

NOTE Confidence: 0.92688179444445

 $00:08:11.869 \longrightarrow 00:08:14.048$  kind of about 1.4% complication rate.

NOTE Confidence: 0.92688179444445

 $00:08:14.048 \rightarrow 00:08:15.236$  There are dangers,

NOTE Confidence: 0.92688179444445

 $00:08:15.240 \longrightarrow 00:08:15.617$  collaterals,

NOTE Confidence: 0.92688179444445

 $00{:}08{:}15.617 \dashrightarrow 00{:}08{:}17.879$  meaning potential collaterals from the Emma.

NOTE Confidence: 0.92688179444445

 $00:08:17.880 \rightarrow 00:08:20.340$  To say the optomec artery which

NOTE Confidence: 0.92688179444445

 $00{:}08{:}20{.}340 \dashrightarrow 00{:}08{:}22{.}218$  is well described and it's just

NOTE Confidence: 0.92688179444445

 $00{:}08{:}22.218 \dashrightarrow 00{:}08{:}24.127$  something that we have to be

NOTE Confidence: 0.92688179444445

 $00:08:24.127 \longrightarrow 00:08:25.617$  careful about and lookout for.

NOTE Confidence: 0.92688179444445

00:08:25.620 --> 00:08:25.998 Uhm,

NOTE Confidence: 0.92688179444445

 $00:08:25.998 \longrightarrow 00:08:28.266$  and then here is a single

NOTE Confidence: 0.92688179444445

 $00:08:28.266 \rightarrow 00:08:29.930$  center prospective study where

NOTE Confidence: 0.92688179444445

 $00:08:29.930 \dashrightarrow 00:08:32.200$  embolization was done for patients

NOTE Confidence: 0.92688179444445

 $00:08:32.200 \longrightarrow 00:08:34.557$  that they considered high risk

NOTE Confidence: 0.92688179444445

 $00:08:34.557 \rightarrow 00:08:36.429$  for recurrence after surgery.

00:08:36.430 --> 00:08:39.223 So 91 sub drills in 89 patients

NOTE Confidence: 0.92688179444445

 $00:08:39.223 \rightarrow 00:08:41.560$  after surgery got embolization.

NOTE Confidence: 0.92688179444445

 $00:08:41.560 \longrightarrow 00:08:43.626$  And they compared this to 174

NOTE Confidence: 0.92688179444445

 $00{:}08{:}43.626 \dashrightarrow 00{:}08{:}45.856$  historical controls and they saw

NOTE Confidence: 0.92688179444445

 $00{:}08{:}45{.}856 \dashrightarrow 00{:}08{:}48{.}522$  that in the patients that got

NOTE Confidence: 0.92688179444445

 $00:08:48.522 \longrightarrow 00:08:50.527$  embolization there was only a

NOTE Confidence: 0.92688179444445

00:08:50.527 -> 00:08:53.180 4% recurrence rate or needing an

NOTE Confidence: 0.92688179444445

 $00:08:53.180 \longrightarrow 00:08:54.980$  additional intervention compared to

NOTE Confidence: 0.92688179444445

 $00:08:54.980 \dashrightarrow 00:08:57.190$  14% in their historical controls.

NOTE Confidence: 0.92688179444445

 $00:08:57.190 \longrightarrow 00:08:59.518$  So this suggests that it could

NOTE Confidence: 0.92688179444445

00:08:59.518 --> 00:09:02.042 be very effective for helping to

NOTE Confidence: 0.92688179444445

 $00:09:02.042 \rightarrow 00:09:04.958$  prevent recurrence in in subbed roles.

NOTE Confidence: 0.92688179444445

00:09:04.960 --> 00:09:07.240 Here at Northwell at Northshore,

NOTE Confidence: 0.92688179444445

 $00:09:07.240 \dashrightarrow 00:09:08.552$  we've had similar experience.

NOTE Confidence: 0.92688179444445

 $00:09:08.552 \rightarrow 00:09:10.520$  We've done about 80 patients here,

 $00:09:10.520 \dashrightarrow 00:09:12.446$  and this doesn't include the Lenox

NOTE Confidence: 0.92688179444445

 $00:09:12.446 \dashrightarrow 00:09:14.034$  Hill experience where doctors are

NOTE Confidence: 0.92688179444445

 $00:09:14.034 \rightarrow 00:09:15.749$  really there is doing them as well.

NOTE Confidence: 0.92688179444445

 $00:09:15.750 \longrightarrow 00:09:18.320$  We've had three patients fail,

NOTE Confidence: 0.92688179444445

 $00:09:18.320 \longrightarrow 00:09:21.032$  meaning they came back with growth

NOTE Confidence: 0.92688179444445

 $00{:}09{:}21.032 \dashrightarrow 00{:}09{:}23.642$  of their residual subdural requiring

NOTE Confidence: 0.92688179444445

 $00:09:23.642 \longrightarrow 00:09:24.686$  further surgery.

NOTE Confidence: 0.92688179444445

 $00:09:24.690 \longrightarrow 00:09:27.440$  So essentially 96% success rate.

NOTE Confidence: 0.92688179444445

 $00{:}09{:}27{.}440 \dashrightarrow 00{:}09{:}29{.}654$  There was one complication out of

NOTE Confidence: 0.92688179444445

 $00:09:29.654 \rightarrow 00:09:32.659$  all 77 that could be considered major.

NOTE Confidence: 0.92688179444445

 $00:09:32.660 \longrightarrow 00:09:34.400$  There was a partial kind of

NOTE Confidence: 0.92688179444445

 $00:09:34.400 \longrightarrow 00:09:37.730$  partial blurry vision. In one eye.

NOTE Confidence: 0.92688179444445

 $00:09:37.730 \rightarrow 00:09:39.230$  And there were three mortality's,

NOTE Confidence: 0.92688179444445

 $00:09:39.230 \longrightarrow 00:09:40.259$  all unrelated symbolisation.

NOTE Confidence: 0.92688179444445

00:09:40.259 --> 00:09:41.288 Just you know,

NOTE Confidence: 0.92688179444445

 $00:09:41.290 \longrightarrow 00:09:43.234$  these are a lot of these are sick

00:09:43.234 --> 00:09:45.230 patients with some more advanced lymphoma,

NOTE Confidence: 0.92688179444445

00:09:45.230 --> 00:09:48.580 multi multi system organ failure.

NOTE Confidence: 0.92688179444445

00:09:48.580 --> 00:09:48.898 Uhm,

NOTE Confidence: 0.92688179444445

 $00{:}09{:}48.898 \dashrightarrow 00{:}09{:}51.124$  and I include this chart because it

NOTE Confidence: 0.92688179444445

 $00:09:51.124 \rightarrow 00:09:53.740$  really helps to show how this works overtime.

NOTE Confidence: 0.92688179444445

 $00:09:53.740 \longrightarrow 00:09:56.368$  So certainly this can't be done

NOTE Confidence: 0.92688179444445

 $00:09:56.368 \rightarrow 00:09:59.013$  for patients that need you know

NOTE Confidence: 0.92688179444445

 $00:09:59.013 \dashrightarrow 00:10:01.260$  urgent relief of pressure from

NOTE Confidence: 0.92688179444445

 $00:10:01.260 \longrightarrow 00:10:03.100$  from a large collection.

NOTE Confidence: 0.92688179444445

 $00:10:03.100 \rightarrow 00:10:05.038$  This is something that works overtime,

NOTE Confidence: 0.92688179444445

 $00:10:05.040 \longrightarrow 00:10:06.741$  so even if you look at this

NOTE Confidence: 0.92688179444445

 $00{:}10{:}06{.}741 \dashrightarrow 00{:}10{:}08{.}389$  chart at the two week Mark,

NOTE Confidence: 0.92688179444445

 $00:10:08.390 \longrightarrow 00:10:09.965$  most of the time there's not that

NOTE Confidence: 0.92688179444445

00:10:09.965 --> 00:10:11.849 much of a reduction in size yet,

NOTE Confidence: 0.92688179444445

 $00:10:11.850 \longrightarrow 00:10:13.000$  but certainly you want to

- $00:10:13.000 \rightarrow 00:10:14.150$  see that it's not getting
- NOTE Confidence: 0.928494137
- $00:10:14.199 \rightarrow 00:10:15.967$  any bigger and then by six weeks you
- NOTE Confidence: 0.928494137
- 00:10:15.967 --> 00:10:17.568 really start to see this drop off in
- NOTE Confidence: 0.928494137
- $00{:}10{:}17.568 \dashrightarrow 00{:}10{:}19.538$  size and by three months many of them.
- NOTE Confidence: 0.928494137
- $00:10:19.538 \longrightarrow 00:10:20.766$  And in our experience,
- NOTE Confidence: 0.928494137
- $00{:}10{:}20.770 \dashrightarrow 00{:}10{:}23.885$  over 90% have significant reduction in size.
- NOTE Confidence: 0.928494137
- $00:10:23.890 \longrightarrow 00:10:27.160$  Many of them resolved completely.
- NOTE Confidence: 0.928494137
- $00:10:27.160 \rightarrow 00:10:30.013$  Uhm, so you know where could this be useful?
- NOTE Confidence: 0.928494137
- $00{:}10{:}30{.}020 \dashrightarrow 00{:}10{:}31{.}625$  So certainly you have these
- NOTE Confidence: 0.928494137
- $00:10:31.625 \rightarrow 00:10:33.230$  patients that have chronic subdural
- NOTE Confidence: 0.928494137
- 00:10:33.285 00:10:35.019 hematomas that are not going away,
- NOTE Confidence: 0.928494137
- $00:10:35.020 \rightarrow 00:10:36.064$  or even getting bigger,
- NOTE Confidence: 0.928494137
- $00:10:36.064 \rightarrow 00:10:37.630$  but haven't quite gotten to the
- NOTE Confidence: 0.928494137
- $00{:}10{:}37.684 \dashrightarrow 00{:}10{:}39.448$  point yet where it's causing so much
- NOTE Confidence: 0.928494137
- $00:10:39.448 \rightarrow 00:10:41.109$  Mass Effect that they need surgery.
- NOTE Confidence: 0.928494137
- $00:10:41.110 \longrightarrow 00:10:42.363$  This is a great option to sort

- NOTE Confidence: 0.928494137
- $00:10:42.363 \longrightarrow 00:10:43.120$  of fend it off,
- NOTE Confidence: 0.928494137
- $00{:}10{:}43.120 \dashrightarrow 00{:}10{:}45.320$  and in many times help it go away.
- NOTE Confidence: 0.928494137
- $00:10:45.320 \longrightarrow 00:10:47.042$  Patients that you might want to avoid
- NOTE Confidence: 0.928494137
- $00:10:47.042 \rightarrow 00:10:48.579$  surgery for for whatever reason,
- NOTE Confidence: 0.928494137
- $00:10:48.580 \rightarrow 00:10:50.990$  whether they have significant comorbidities.
- NOTE Confidence: 0.928494137
- $00:10:50.990 \rightarrow 00:10:53.726$  Patients that need to be restarted
- NOTE Confidence: 0.928494137
- $00:10:53.726 \rightarrow 00:10:55.550$  on antiplatelets or anticoagulation
- NOTE Confidence: 0.928494137
- $00:10:55.622 \rightarrow 00:10:56.470$  very quickly.
- NOTE Confidence: 0.928494137
- $00:10:56.470 \rightarrow 00:10:57.958$  Those are some of the options,
- NOTE Confidence: 0.928494137
- $00:10:57.960 \rightarrow 00:11:01.537$  so just a few quick illustrative cases.
- NOTE Confidence: 0.928494137
- $00:11:01.540 \longrightarrow 00:11:03.065$  Here's a patient with diffuse
- NOTE Confidence: 0.928494137
- 00:11:03.065 --> 00:11:04.954 large B cell lymphoma that had
- NOTE Confidence: 0.928494137
- $00:11:04.954 \rightarrow 00:11:06.784$  this small subdural that was just
- NOTE Confidence: 0.928494137
- 00:11:06.784 --> 00:11:08.030 being watched over time.
- NOTE Confidence: 0.928494137
- $00:11:08.030 \rightarrow 00:11:09.200$  It's platelets were very low.
- NOTE Confidence: 0.928494137

 $00:11:09.200 \rightarrow 00:11:11.008$  Here was as low as 34,000,

NOTE Confidence: 0.928494137

 $00:11:11.008 \dashrightarrow 00:11:13.864$  so he's not a good surgical candidate.

NOTE Confidence: 0.928494137

00:11:13.870 --> 00:11:15.990 Overtime it got bigger and bigger to the

NOTE Confidence: 0.928494137

 $00:11:15.990 \rightarrow 00:11:17.948$  point where it started causing worsening

NOTE Confidence: 0.928494137

 $00{:}11{:}17{.}948 \dashrightarrow 00{:}11{:}20{.}210$  symptoms and had acute hemorrhage into it.

NOTE Confidence: 0.928494137

 $00{:}11{:}20{.}210 \dashrightarrow 00{:}11{:}22{.}450$  Again, bad surgical candidate with

NOTE Confidence: 0.928494137

 $00:11:22.450 \dashrightarrow 00:11:23.794$  this severe thrombocytopenia.

NOTE Confidence: 0.928494137

 $00:11:23.800 \rightarrow 00:11:25.870$  So we tried this embolization procedure.

NOTE Confidence: 0.928494137

 $00{:}11{:}25.870 \dashrightarrow 00{:}11{:}30.214$  Just a few before and after Ma injections.

NOTE Confidence: 0.928494137

 $00{:}11{:}30{.}220 \dashrightarrow 00{:}11{:}32{.}284$  And if you look at the post-op scan

NOTE Confidence: 0.928494137

 $00{:}11{:}32{.}284 \dashrightarrow 00{:}11{:}34{.}117$  compared to about six months later,

NOTE Confidence: 0.928494137

 $00:11:34.120 \longrightarrow 00:11:36.514$  he had this MRI and it was

NOTE Confidence: 0.928494137

 $00:11:36.514 \rightarrow 00:11:37.198$  completely resolved.

NOTE Confidence: 0.928494137

 $00:11:37.200 \longrightarrow 00:11:39.335$  So great option for this

NOTE Confidence: 0.928494137

 $00:11:39.335 \longrightarrow 00:11:40.616$  poor surgical candidate.

NOTE Confidence: 0.928494137

00:11:40.620 --> 00:11:40.938 Uh,

- NOTE Confidence: 0.928494137
- $00:11:40.938 \longrightarrow 00:11:42.846$  here's a a patient work that's
- NOTE Confidence: 0.928494137
- $00:11:42.846 \longrightarrow 00:11:44.870$  very relevant to this conference.
- NOTE Confidence: 0.928494137
- 00:11:44.870 --> 00:11:47.290 A patient who is 70 and had many T as
- NOTE Confidence: 0.928494137
- $00:11:47.363 \rightarrow 00:11:49.659$  well as a small stroke in the past,
- NOTE Confidence: 0.928494137
- $00:11:49.660 \rightarrow 00:11:51.412$  and he's been managed by neurologist
- NOTE Confidence: 0.928494137
- 00:11:51.412 --> 00:11:52.580 on aspirin and Plavix.
- NOTE Confidence: 0.928494137
- $00:11:52.580 \dashrightarrow 00:11:54.656$  Because of that started to develop
- NOTE Confidence: 0.928494137
- $00:11:54.656 \rightarrow 00:11:56.734$  some kind of intermittent mild word
- NOTE Confidence: 0.928494137
- 00:11:56.734 --> 00:11:58.636 finding difficulty and was found to
- NOTE Confidence: 0.928494137
- $00{:}11{:}58.636 \dashrightarrow 00{:}12{:}01.116$  have this acute on chronic subdural here.
- NOTE Confidence: 0.928494137
- 00:12:01.120 --> 00:12:01.398 Again,
- NOTE Confidence: 0.928494137
- $00{:}12{:}01{.}398 \dashrightarrow 00{:}12{:}03{.}066$  not a great candidate and someone
- NOTE Confidence: 0.928494137
- $00:12:03.066 \longrightarrow 00:12:05.042$  you certainly want to get back on
- NOTE Confidence: 0.928494137
- $00{:}12{:}05{.}042 \dashrightarrow 00{:}12{:}06{.}134$  their antiplatelets very quickly
- NOTE Confidence: 0.928494137
- $00:12:06.134 \rightarrow 00:12:07.628$  because of his stroke history.
- NOTE Confidence: 0.928494137

- 00:12:07.630 --> 00:12:09.690 So if you watch overtime,
- NOTE Confidence: 0.928494137
- $00:12:09.690 \rightarrow 00:12:11.685$  here's the two weeks cans getting smaller,
- NOTE Confidence: 0.928494137
- $00:12:11.690 \longrightarrow 00:12:13.510$  six weeks and three months.
- NOTE Confidence: 0.928494137
- $00:12:13.510 \longrightarrow 00:12:14.230$  Even smaller,
- NOTE Confidence: 0.928494137
- $00:12:14.230 \longrightarrow 00:12:15.670$  almost completely resolved this
- NOTE Confidence: 0.928494137
- $00:12:15.670 \longrightarrow 00:12:17.110$  tiny tiny bit left,
- NOTE Confidence: 0.928494137
- $00{:}12{:}17{.}110 \dashrightarrow 00{:}12{:}18{.}811$  and we were able to restart his
- NOTE Confidence: 0.928494137
- $00:12:18.811 \rightarrow 00:12:20.326$  both of his antiplatelets pretty
- NOTE Confidence: 0.928494137
- $00{:}12{:}20{.}326 \dashrightarrow 00{:}12{:}22{.}860$  quickly and able to prevent him from
- NOTE Confidence: 0.928494137
- $00:12:22.860 \rightarrow 00:12:24.868$  having any further ischemic events.
- NOTE Confidence: 0.928494137
- 00:12:24.870 --> 00:12:25.328 Uhm?
- NOTE Confidence: 0.928494137
- 00:12:25.328 --> 00:12:28.076 So just quickly 'cause I'm running
- NOTE Confidence: 0.928494137
- $00:12:28.076 \longrightarrow 00:12:29.450$  out of time.
- NOTE Confidence: 0.928494137
- $00:12:29.450 \longrightarrow 00:12:30.866$  Just another quick case.
- NOTE Confidence: 0.928494137
- $00:12:30.866 \longrightarrow 00:12:33.344$  Examples and 91 year old who was
- NOTE Confidence: 0.928494137
- $00:12:33.344 \rightarrow 00:12:35.353$  on Coumadin who had a Burr hole

- NOTE Confidence: 0.928494137
- $00:12:35.353 \rightarrow 00:12:38.467$  that it then ended up getting this
- NOTE Confidence: 0.928494137
- $00:12:38.467 \longrightarrow 00:12:39.949$  embolization procedure effort
- NOTE Confidence: 0.928494137
- $00:12:39.949 \longrightarrow 00:12:40.937$  expanded further.
- NOTE Confidence: 0.928494137
- $00{:}12{:}40{.}940 \dashrightarrow 00{:}12{:}43{.}404$  You could just see overtime how this
- NOTE Confidence: 0.928494137
- $00:12:43.404 \rightarrow 00:12:45.668$  slowly goes away up to three months
- NOTE Confidence: 0.928494137
- $00:12:45.668 \rightarrow 00:12:47.850$  all the way on the right there.
- NOTE Confidence: 0.928494137
- 00:12:47.850 --> 00:12:48.298 Uhm?
- NOTE Confidence: 0.928494137
- $00{:}12{:}48.298 \dashrightarrow 00{:}12{:}50.986$  Few other case examples I'll skip
- NOTE Confidence: 0.928494137
- $00:12:50.986 \longrightarrow 00:12:53.418$  through for the sake of time
- NOTE Confidence: 0.928494137
- $00:12:53.420 \longrightarrow 00:12:55.112$  and then certainly are when when
- NOTE Confidence: 0.928494137
- $00:12:55.112 \longrightarrow 00:12:56.240$  this is done postoperatively,
- NOTE Confidence: 0.928494137
- $00{:}12{:}56{.}240 \dashrightarrow 00{:}12{:}57{.}654$  the curve looks a little bit different.
- NOTE Confidence: 0.928494137
- 00:12:57.660 --> 00:12:59.025 You see this initial drop
- NOTE Confidence: 0.928494137
- 00:12:59.025 --> 00:13:00.390 off in size because of
- NOTE Confidence: 0.887942797
- $00:13:00.448 \longrightarrow 00:13:02.240$  the surgery and then you hope to
- NOTE Confidence: 0.887942797

 $00:13:02.240 \rightarrow 00:13:04.190$  see the slow tapering down overtime

NOTE Confidence: 0.887942797

 $00{:}13{:}04{.}190 \dashrightarrow 00{:}13{:}06{.}065$  where that residual less left

NOTE Confidence: 0.887942797

00:13:06.065 --> 00:13:09.428 after surgery continues to go away.

NOTE Confidence: 0.887942797

 $00{:}13{:}09{.}430 \dashrightarrow 00{:}13{:}11{.}918$  So you know, can this be used after

NOTE Confidence: 0.887942797

 $00:13:11.918 \rightarrow 00:13:14.367$  surgery to help prevent a recurrence?

NOTE Confidence: 0.887942797

 $00{:}13{:}14.370 \dashrightarrow 00{:}13{:}16.570$  And certainly not every patient is the same.

NOTE Confidence: 0.887942797

 $00{:}13{:}16{.}570 \dashrightarrow 00{:}13{:}18{.}446$  So this example on the left there

NOTE Confidence: 0.887942797

00:13:18.446 --> 00:13:20.399 was a patient having seizures are

NOTE Confidence: 0.887942797

00:13:20.399 --> 00:13:21.855 relatively smaller subdural and

NOTE Confidence: 0.887942797

 $00{:}13{:}21.855 \dashrightarrow 00{:}13{:}24.101$  his brain re expanded nicely and

NOTE Confidence: 0.887942797

 $00{:}13{:}24.101 \dashrightarrow 00{:}13{:}25.916$  there's not much residual left.

NOTE Confidence: 0.887942797

00:13:25.920 --> 00:13:27.648 He's at a much lower risk for recurrence,

NOTE Confidence: 0.887942797

 $00{:}13{:}27.650 \dashrightarrow 00{:}13{:}29.156$  probably then say this patient on

NOTE Confidence: 0.887942797

 $00:13:29.156 \rightarrow 00:13:30.844$  the right who had bilateral large

NOTE Confidence: 0.887942797

 $00:13:30.844 \rightarrow 00:13:32.424$  collections and then post op.

NOTE Confidence: 0.887942797

 $00:13:32.430 \rightarrow 00:13:33.695$  The brain just doesn't really

- NOTE Confidence: 0.887942797
- 00:13:33.695 00:13:35.459 re expand and you have all this
- NOTE Confidence: 0.887942797
- $00:13:35.459 \longrightarrow 00:13:36.809$  error and a lot of residual.
- NOTE Confidence: 0.887942797
- $00:13:36.810 \rightarrow 00:13:38.310$  This is somebody who would probably
- NOTE Confidence: 0.887942797
- 00:13:38.310 > 00:13:39.534 benefit from anything that you
- NOTE Confidence: 0.887942797
- $00:13:39.534 \longrightarrow 00:13:40.638$  can do to help prevent this.
- NOTE Confidence: 0.887942797
- $00:13:40.640 \rightarrow 00:13:41.550$  This recurrence.
- NOTE Confidence: 0.830701071428571
- $00:13:43.630 \rightarrow 00:13:45.569$  Uh, to quote some, you know we
- NOTE Confidence: 0.830701071428571
- $00:13:45.569 \longrightarrow 00:13:47.815$  did have a few failures and that
- NOTE Confidence: 0.830701071428571
- $00{:}13{:}47.815 \dashrightarrow 00{:}13{:}50.250$  could be a topic for another time.
- NOTE Confidence: 0.830701071428571
- $00:13:50.250 \rightarrow 00:13:52.134$  It could be related to variations
- NOTE Confidence: 0.830701071428571
- $00:13:52.134 \rightarrow 00:13:54.714$  in the anatomy of the MA and
- NOTE Confidence: 0.830701071428571
- $00:13:54.714 \rightarrow 00:13:56.780$  and the degree to which you are
- NOTE Confidence: 0.830701071428571
- $00:13:56.780 \longrightarrow 00:13:58.625$  able to affectively embolize them.
- NOTE Confidence: 0.830701071428571
- $00{:}13{:}58{.}630 \dashrightarrow 00{:}14{:}01{.}078$  Uhm, so generally you have various
- NOTE Confidence: 0.830701071428571
- $00{:}14{:}01.078 \dashrightarrow 00{:}14{:}03.698$  techniques that you can use micro
- NOTE Confidence: 0.830701071428571

00:14:03.698 --> 00:14:05.526 particles which are injected,

NOTE Confidence: 0.830701071428571

00:14:05.530 --> 00:14:07.763 you know, kind of distally into the

NOTE Confidence: 0.830701071428571

 $00:14:07.763 \rightarrow 00:14:09.600$  distal branches or liquid embolic's.

NOTE Confidence: 0.830701071428571

00:14:09.600 --> 00:14:11.900 Some are good for different

NOTE Confidence: 0.830701071428571

 $00{:}14{:}11{.}900 \dashrightarrow 00{:}14{:}14{.}844$  situations depending on anatomy.

NOTE Confidence: 0.830701071428571

 $00:14:14.844 \rightarrow 00:14:16.465$  Uhm, and certainly you

NOTE Confidence: 0.830701071428571

 $00{:}14{:}16{.}465 \dashrightarrow 00{:}14{:}17{.}940$  know that last note there.

NOTE Confidence: 0.830701071428571

 $00{:}14{:}17{.}940 \dashrightarrow 00{:}14{:}20{.}658$  This is not again meant to be done in

NOTE Confidence: 0.830701071428571

 $00{:}14{:}20.658 \dashrightarrow 00{:}14{:}23.067$  patients that require urgent evacuation.

NOTE Confidence: 0.830701071428571

00:14:23.070 - 00:14:25.302 Uhm, so a few of the trials going on.

NOTE Confidence: 0.830701071428571

 $00{:}14{:}25{.}310 \dashrightarrow 00{:}14{:}27{.}446$  We are here apart of the EMBOLIZED trial,

NOTE Confidence: 0.830701071428571

 $00:14:27.450 \rightarrow 00:14:30.168$  which is a multicenter, randomized trial.

NOTE Confidence: 0.830701071428571

 $00:14:30.170 \longrightarrow 00:14:31.598$  That national PSRR, Dr.

NOTE Confidence: 0.830701071428571

00:14:31.598 --> 00:14:32.669 Norman from Cornell,

NOTE Confidence: 0.830701071428571

 $00:14:32.670 \longrightarrow 00:14:34.546$  Dr Davies from Buffalo,

NOTE Confidence: 0.830701071428571

 $00{:}14{:}34{.}546 \dashrightarrow 00{:}14{:}37{.}850$  where there's two cohorts based on size,

- NOTE Confidence: 0.830701071428571
- 00:14:37.850 --> 00:14:39.770 the smaller size or randomized,
- NOTE Confidence: 0.830701071428571
- $00:14:39.770 \longrightarrow 00:14:42.735$  either observation only or embolization
- NOTE Confidence: 0.830701071428571
- $00:14:42.735 \longrightarrow 00:14:44.855$  only and then the larger size
- NOTE Confidence: 0.830701071428571
- $00:14:44.855 \longrightarrow 00:14:46.380$  greater than 15 millimeters or
- NOTE Confidence: 0.830701071428571
- $00{:}14{:}46{.}439 \dashrightarrow 00{:}14{:}48{.}519$  randomized to surgery only versus
- NOTE Confidence: 0.830701071428571
- $00:14:48.519 \longrightarrow 00:14:49.767$  embolization plus surgery.
- NOTE Confidence: 0.830701071428571
- $00{:}14{:}49{.}770 \dashrightarrow 00{:}14{:}53{.}075$  So overall, they're up to about 88 patients.
- NOTE Confidence: 0.830701071428571
- $00:14:53.075 \longrightarrow 00:14:53.605$  In total,
- NOTE Confidence: 0.830701071428571
- 00:14:53.605 --> 00:14:56.218 we're hoping to get up to 400 and you know,
- NOTE Confidence: 0.830701071428571
- $00:14:56.220 \rightarrow 00:14:58.135$  hopefully this will provide better
- NOTE Confidence: 0.830701071428571
- $00:14:58.135 \rightarrow 00:15:00.514$  evidence for using this again either.
- NOTE Confidence: 0.830701071428571
- $00:15:00.514 \rightarrow 00:15:03.046$  Upfront as treatment instead of surgery,
- NOTE Confidence: 0.830701071428571
- $00{:}15{:}03{.}050 \dashrightarrow 00{:}15{:}05{.}510$  or in addition, as an agent.
- NOTE Confidence: 0.830701071428571
- 00:15:05.510 --> 00:15:07.690 Therapy. In addition to surgery.
- NOTE Confidence: 0.830701071428571
- $00{:}15{:}07.690 \dashrightarrow 00{:}15{:}10.486$  We also started at a postoperative
- NOTE Confidence: 0.830701071428571

 $00:15:10.486 \rightarrow 00:15:11.884$  trial here ourselves.

NOTE Confidence: 0.830701071428571

 $00:15:11.890 \longrightarrow 00:15:13.870$  So for the patients that don't

NOTE Confidence: 0.830701071428571

 $00:15:13.870 \longrightarrow 00:15:15.843$  qualify for that trial and need

NOTE Confidence: 0.830701071428571

 $00:15:15.843 \rightarrow 00:15:17.613$  to go to more urgent surgery.

NOTE Confidence: 0.830701071428571

 $00:15:17.620 \rightarrow 00:15:20.578$  Randomized to the surgery only versus

NOTE Confidence: 0.830701071428571

 $00{:}15{:}20.578 \dashrightarrow 00{:}15{:}22.550$  surgery followed by embolization.

NOTE Confidence: 0.830701071428571

 $00{:}15{:}22.550 \dashrightarrow 00{:}15{:}24.720$  You know, up to a week afterwards.

NOTE Confidence: 0.830701071428571

 $00:15:24.720 \longrightarrow 00:15:26.530$  Uhm?

NOTE Confidence: 0.830701071428571

 $00{:}15{:}26{.}530 \dashrightarrow 00{:}15{:}28{.}098$  We're going to have ourselves here at

NOTE Confidence: 0.830701071428571

 $00{:}15{:}28.098 \dashrightarrow 00{:}15{:}29.700$  North Shore, as well as Lennox Hill,

NOTE Confidence: 0.830701071428571

 $00:15:29.700 \longrightarrow 00:15:31.084$  about to be involved,

NOTE Confidence: 0.830701071428571

 $00{:}15{:}31.084 \dashrightarrow 00{:}15{:}32.814$  and hopefully this will again

NOTE Confidence: 0.830701071428571

 $00:15:32.814 \rightarrow 00:15:34.491$  provide better evidence for whether

NOTE Confidence: 0.830701071428571

 $00{:}15{:}34{.}491 \dashrightarrow 00{:}15{:}36{.}936$  this can be useful to help prevent

NOTE Confidence: 0.830701071428571

00:15:36.936 --> 00:15:38.388 recurrence after surgery.

NOTE Confidence: 0.830701071428571

 $00:15:38.390 \rightarrow 00:15:40.770$  For patients that require surgery.

00:15:40.770 --> 00:15:42.690 So that's kind of a whirlwind

NOTE Confidence: 0.830701071428571

 $00:15:42.690 \rightarrow 00:15:43.650$  tour through this.

NOTE Confidence: 0.830701071428571

 $00:15:43.650 \rightarrow 00:15:45.168$  Thank you for inviting me and

NOTE Confidence: 0.830701071428571

 $00:15:45.168 \rightarrow 00:15:46.180$  thank you for listening.

NOTE Confidence: 0.7876411526666667

 $00:15:46.830 \longrightarrow 00:15:48.590$  Thank you so much,

NOTE Confidence: 0.787641152666667

00:15:48.590 --> 00:15:50.790 Doctor Link a really excellent

NOTE Confidence: 0.7876411526666667

 $00:15:50.790 \rightarrow 00:15:53.230$  presentation and definitely a hot topic.

NOTE Confidence: 0.787641152666667

00:15:53.230 --> 00:15:56.270 MMA embolization so you know.

NOTE Confidence: 0.7876411526666667

00:15:56.270 --> 00:15:59.742 I know at Brown here we do some

NOTE Confidence: 0.787641152666667

 $00{:}15{:}59{.}742 \dashrightarrow 00{:}16{:}01{.}845$  MMA embolization and I'm sure

NOTE Confidence: 0.7876411526666667

 $00{:}16{:}01.845 \dashrightarrow 00{:}16{:}05.021$  other sites and the RCC do so so

NOTE Confidence: 0.787641152666667

00:16:05.021 --> 00:16:08.421 you know if we can help with any

NOTE Confidence: 0.7876411526666667

 $00{:}16{:}08{.}421 \dashrightarrow 00{:}16{:}10{.}266$  preliminary data or anything or

NOTE Confidence: 0.787641152666667

00:16:10.266 --> 00:16:12.827 if you have thoughts about a small

NOTE Confidence: 0.7876411526666667

00:16:12.827 --> 00:16:15.354 scale study and within the RCC I

00:16:15.354 --> 00:16:17.776 think this would be a great idea. NOTE Confidence: 0.787641152666667 00:16:17.780 --> 00:16:20.096 Uhm, for the sake of time, NOTE Confidence: 0.787641152666667 00:16:20.100 --> 00:16:20.001 where two men