WEBVTT

00:00:02.370 --> 00:00:04.330 In this video tutorial,

00:00:04.330 --> 00:00:06.770 we will review the necessary

00:00:06.770 --> 00:00:09.220 steps to obtain accurate bladder

00:00:09.220 --> 00:00:11.660 volume measurements for patients in

00:00:11.660 --> 00:00:15.080 the pediatric Ed, and we will review

00:00:15.080 --> 00:00:17.530 some cases where this pokus

00:00:17.530 --> 00:00:20.458 application can be used to help

00:00:20.460 --> 00:00:22.420 streamline your patient care.

00:00:24.930 --> 00:00:27.795 Indications to perform a diagnostic

00:00:27.795 --> 00:00:31.070 bladder scan include the following one.

00:00:31.070 --> 00:00:33.210 Prior to urine catheterization

00:00:33.210 --> 00:00:37.189 to minimize risk of a dry Cath 2.

00:00:37.190 --> 00:00:40.570 Patients with suspected ovarian torsion

00:00:40.570 --> 00:00:43.275 before radiology performed ultrasound.

NOTE Confidence: 0.99060845

00:00:43.275 --> 00:00:46.650 Tadim adequacy of bladder filling.

NOTE Confidence: 0.99060845

00:00:46.650 --> 00:00:50.030 Three patients with urine retention.

NOTE Confidence: 0.99060845

00:00:50.030 --> 00:00:52.736 Four patients were reported

NOTE Confidence: 0.99060845

00:00:52.736 --> 00:00:54.764 oliguria or anuria,

NOTE Confidence: 0.99060845

00:00:54.764 --> 00:00:58.822 5 patients with incomplete bladder emptying.

NOTE Confidence: 0.99060845

00:00:58.822 --> 00:01:02.202 6 patients who require suprapubic

NOTE Confidence: 0.99060845

00:01:02.202 --> 00:01:04.230 bladder aspiration procedure.

NOTE Confidence: 0.97957

00:01:08.290 --> 00:01:10.250 Diagnostic bladder scans are

NOTE Confidence: 0.97957

00:01:10.250 --> 00:01:13.190 to be performed with a low

NOTE Confidence: 0.97957

00:01:13.190 --> 00:01:14.660 frequency curvilinear transducer.

NOTE Confidence: 0.9872896

00:01:18.300 --> 00:01:20.200 To maximize patient comfort and

NOTE Confidence: 0.9872896

00:01:20.200 --> 00:01:22.560 improve the quality of your study,

NOTE Confidence: 0.9872896

00:01:22.560 --> 00:01:24.495 hold the transducer like a

NOTE Confidence: 0.9872896

00:01:24.495 --> 00:01:26.430 pen with an incorrect grip.

NOTE Confidence: 0.9872896

00:01:26.430 --> 00:01:28.824 Unnecessary pressure is often applied to

NOTE Confidence: 0.9872896

00:01:28.824 --> 00:01:31.459 the patient skin with a correct grip.

NOTE Confidence: 0.9872896

00:01:31.460 --> 00:01:34.380 The ulnar side of your hand will be

NOTE Confidence: 0.9872896

00:01:34.380 --> 00:01:36.489 directly touching the patient's body.

NOTE Confidence: 0.9872896

00:01:36.490 --> 00:01:39.010 This will allow you to maneuver the

NOTE Confidence: 0.9872896

00:01:39.010 --> 00:01:42.195 probe as necessary and allow for a more

NOTE Confidence: 0.9872896

00:01:42.195 --> 00:01:44.230 comfortable experience for your patient.

NOTE Confidence: 0.9877864

00:01:47.260 --> 00:01:49.510 Please feel free to wear gloves

NOTE Confidence: 0.9877864

00:01:49.510 --> 00:01:51.010 during your ultrasound scan.

NOTE Confidence: 0.9877864

00:01:51.010 --> 00:01:53.044 Many patients will feel more relaxed

NOTE Confidence: 0.9877864

00:01:53.044 --> 00:01:55.179 and the routine use of gloves

NOTE Confidence: 0.9877864

00:01:55.179 --> 00:01:57.321 will also decrease the risk of

NOTE Confidence: 0.9877864

00:01:57.321 --> 00:01:58.890 infectious disease transmission.

NOTE Confidence: 0.9745946

00:02:01.550 --> 00:02:03.888 Before we dive into the image

NOTE Confidence: 0.9745946

00:02:03.888 --> 00:02:06.216 acquisition steps for your bladder scan,

NOTE Confidence: 0.9745946

00:02:06.220 --> 00:02:08.158 let's review a couple of

NOTE Confidence: 0.9745946

00:02:08.160 --> 00:02:09.330 important housekeeping items.

NOTE Confidence: 0.9745946

00:02:09.330 --> 00:02:12.050 Firstly, the epic order to choose from

NOTE Confidence: 0.9745946

00:02:12.050 --> 00:02:14.780 the quick list menu is Ed diagnostic

NOTE Confidence: 0.9745946

00:02:14.780 --> 00:02:17.044 flatter volume eval using this correct

NOTE Confidence: 0.9745946

00:02:17.044 --> 00:02:19.620 order will ensure that your image is

NOTE Confidence: 0.9745946

00:02:19.691 --> 00:02:22.169 captured will be transferred to EPIC,

NOTE Confidence: 0.9745946

00:02:22.170 --> 00:02:24.498 and a report of your interpretation

NOTE Confidence: 0.9745946

00:02:24.498 --> 00:02:25.662 will be generated.

NOTE Confidence: 0.9745946

00:02:25.670 --> 00:02:28.780 Secondly, it is important to fill out Q

NOTE Confidence: 0.9745946

00:02:28.780 --> 00:02:31.190 path immediately after your bladder scan.

NOTE Confidence: 0.9745946

00:02:31.190 --> 00:02:33.372 Is completed and attending signature

NOTE Confidence: 0.9745946

00:02:33.372 --> 00:02:36.750 will be required to push both the images

NOTE Confidence: 0.9745946

00:02:36.750 --> 00:02:39.908 and report over to the medical record.

NOTE Confidence: 0.98752296

00:02:42.420 --> 00:02:44.743 First you will scan through the bladder

NOTE Confidence: 0.98752296

00:02:44.743 --> 00:02:46.408 and transverse orientation with the

NOTE Confidence: 0.98752296

00:02:46.408 --> 00:02:48.060 indicator towards the patient right?

NOTE Confidence: 0.98752296

00:02:48.060 --> 00:02:50.384 Make sure you're all the way down

NOTE Confidence: 0.98752296

00:02:50.384 --> 00:02:52.652 to the pubic synthesis in order to

NOTE Confidence: 0.98752296

00:02:52.652 --> 00:02:54.373 visualize the bladder and slowly

NOTE Confidence: 0.98752296

00:02:54.373 --> 00:02:56.700 fan the probe all the way through.

NOTE Confidence: 0.98064566

00:02:59.200 --> 00:03:01.155 Next you will turn the probe

NOTE Confidence: 0.98064566

00:03:01.155 --> 00:03:03.099 clockwise 90 degrees so that the

NOTE Confidence: 0.98064566

00:03:03.100 --> 00:03:04.725 indicator is pointing towards the

NOTE Confidence: 0.98064566

00:03:04.725 --> 00:03:06.675 patients head and this view you

NOTE Confidence: 0.98064566

00:03:06.675 --> 00:03:08.950 will see the bladder in long axis.

NOTE Confidence: 0.98064566

00:03:08.950 --> 00:03:10.903 Again, you want to slowly fan

NOTE Confidence: 0.98064566

00:03:10.903 --> 00:03:13.175 the probe all the way through and

NOTE Confidence: 0.98064566

00:03:13.175 --> 00:03:15.455 keep an eye out for any abnormal

NOTE Confidence: 0.98064566

00:03:15.455 --> 00:03:17.080 lesions or masses that may

NOTE Confidence: 0.98064566

00:03:17.080 --> 00:03:18.700 be present behind the bladder.

NOTE Confidence: 0.97923785

00:03:21.380 --> 00:03:22.572 In the next step,

NOTE Confidence: 0.97923785

00:03:22.572 --> 00:03:24.928 we will review how to actually obtain

NOTE Confidence: 0.97923785

00:03:24.928 --> 00:03:26.920 your bladder volume measurements.

NOTE Confidence: 0.97923785

00:03:26.920 --> 00:03:29.068 As long as you're using a

NOTE Confidence: 0.97923785

00:03:29.068 --> 00:03:30.500 curvilinear probe utilizing the

NOTE Confidence: 0.97923785

00:03:30.565 --> 00:03:32.450 abdominal or pelvic exam mode,

NOTE Confidence: 0.97923785

00:03:32.450 --> 00:03:34.658 you'll be able to pull up

NOTE Confidence: 0.97923785

00:03:34.658 --> 00:03:35.762 the right calculator.

NOTE Confidence: 0.97923785

00:03:35.770 --> 00:03:37.900 Let's look at the buttons that

NOTE Confidence: 0.97923785

00:03:37.900 --> 00:03:40.199 are squared off in pink boxes.

NOTE Confidence: 0.97923785

00:03:40.200 --> 00:03:42.666 You will once again return to

NOTE Confidence: 0.97923785

00:03:42.666 --> 00:03:44.310 transverse orientation and find

NOTE Confidence: 0.97923785

00:03:44.378 --> 00:03:46.639 the bladder where you see it at

NOTE Confidence: 0.97923785

00:03:46.639 --> 00:03:48.690 its biggest size and hit freeze.

NOTE Confidence: 0.97923785

00:03:48.690 --> 00:03:50.278 Here you will enter.

NOTE Confidence: 0.97923785

00:03:50.280 --> 00:03:53.340 The calc button all the way on the left.

NOTE Confidence: 0.97923785

00:03:53.340 --> 00:03:55.380 This will allow you to enter

NOTE Confidence: 0.97923785

00:03:55.380 --> 00:03:56.400 your first measurement,

NOTE Confidence: 0.97923785

00:03:56.400 --> 00:03:58.440 which will be the height when

NOTE Confidence: 0.97923785

00:03:58.440 --> 00:04:00.140 you push the measure button,

NOTE Confidence: 0.97923785

00:04:00.140 --> 00:04:02.860 a caliper will appear on your screen monitor.

NOTE Confidence: 0.97923785

00:04:02.860 --> 00:04:04.560 You can use the trackpad

NOTE Confidence: 0.97923785

00:04:04.560 --> 00:04:06.260 to move the caliper from

NOTE Confidence: 0.9854504

00:04:06.260 --> 00:04:08.980 the top of the bladder to the bottom

NOTE Confidence: 0.9854504

00:04:08.980 --> 00:04:11.436 of the platter. You can then repeat these

NOTE Confidence: 0.9854504

00:04:11.436 --> 00:04:13.739 steps still in transverse orientation to

NOTE Confidence: 0.9854504

00:04:13.740 --> 00:04:15.780 obtain a width measurement and you

NOTE Confidence: 0.9854504

00:04:15.780 --> 00:04:18.620 can now save a still image of your

NOTE Confidence: 0.9854504

00:04:18.620 --> 00:04:20.346 transverse measurements by hitting the.

NOTE Confidence: 0.9854504

00:04:20.346 --> 00:04:22.500 Acquire button to obtain your

NOTE Confidence: 0.9854504

00:04:22.500 --> 00:04:23.805 bladder length measurement.

NOTE Confidence: 0.9854504

00:04:23.810 --> 00:04:26.318 You'll have to unfreeze the screen

NOTE Confidence: 0.9854504

00:04:26.318 --> 00:04:29.040 by hitting the 2D mode button.

NOTE Confidence: 0.9854504

00:04:29.040 --> 00:04:30.780 That is an orange

NOTE Confidence: 0.9623178

00:04:30.780 --> 00:04:33.396 color above the trackpad. You once

NOTE Confidence: 0.9623178

00:04:33.400 --> 00:04:36.438 again hit the CAP button and the

NOTE Confidence: 0.9623178

00:04:36.438 --> 00:04:38.629 machine will remember your prior

NOTE Confidence: 0.9623178

00:04:38.630 --> 00:04:41.250 two measurements and allow you to

NOTE Confidence: 0.9623178

00:04:41.250 --> 00:04:43.432 now obtain a third measurement.

NOTE Confidence: 0.9623178

00:04:43.432 --> 00:04:46.920 Placed the caliper on the Trigone area of

NOTE Confidence: 0.9623178

00:04:46.920 --> 00:04:49.100 the bladder and obtain the

NOTE Confidence: 0.9727081

00:04:49.100 --> 00:04:50.543 longest distance seen.

NOTE Confidence: 0.9727081

00:04:50.543 --> 00:04:53.429 Towards the bottom part of the

NOTE Confidence: 0.97790325

00:04:53.430 --> 00:04:55.740 bladder. Once you obtain this

NOTE Confidence: 0.97790325

00:04:55.740 --> 00:04:58.200 final measurement, the. Ultrasound

NOTE Confidence: 0.9062551

00:04:58.200 --> 00:04:59.511 machine will automatically

NOTE Confidence: 0.9062551

00:04:59.511 --> 00:05:01.696 generate the bladder volume using

NOTE Confidence: 0.9062551

00:05:01.696 --> 00:05:04.410 a pre designated formula that has

NOTE Confidence: 0.9062551

00:05:04.410 --> 00:05:06.620 been programmed into the system.

NOTE Confidence: 0.9780492

00:05:08.990 --> 00:05:11.195 Your final step will be to interpret

NOTE Confidence: 0.9780492

00:05:11.200 --> 00:05:12.780 your appointed Carol to sound

NOTE Confidence: 0.9780492

00:05:12.780 --> 00:05:14.355 findings related to the platter.

NOTE Confidence: 0.9780492

00:05:14.360 --> 00:05:15.940 Depending on why you're doing

NOTE Confidence: 0.9780492

00:05:15.940 --> 00:05:17.840 this study in the 1st place,

NOTE Confidence: 0.9780492

00:05:17.840 --> 00:05:19.734 you will make an assessment of

NOTE Confidence: 0.9780492

00:05:19.734 --> 00:05:21.315 whether there is sufficient or

NOTE Confidence: 0.9780492

00:05:21.315 --> 00:05:22.896 insufficient amount of urine for

NOTE Confidence: 0.9780492

00:05:22.896 --> 00:05:24.162 a catheterization procedure and

NOTE Confidence: 0.9780492

00:05:24.162 --> 00:05:25.425 likewise sufficient or insufficient

NOTE Confidence: 0.9780492

00:05:25.425 --> 00:05:27.002 amount of urine for radiology.

NOTE Confidence: 0.9780492

00:05:27.002 --> 00:05:27.318 Performed

NOTE Confidence: 0.9780492

00:05:27.320 --> 00:05:28.580 ultrasound to assess for

NOTE Confidence: 0.9780492

00:05:28.580 --> 00:05:29.850 ovarian pathology, and you

NOTE Confidence: 0.9780492

00:05:29.850 --> 00:05:32.370 will also be asked to provide a general

NOTE Confidence: 0.9780492

00:05:32.370 --> 00:05:34.584 assessment of the amount of urine in

NOTE Confidence: 0.9780492

00:05:34.584 --> 00:05:36.480 the bladder which you will correlate

NOTE Confidence: 0.9780492

00:05:36.480 --> 00:05:38.145 clinically and apply those volume

NOTE Confidence: 0.9780492

00:05:38.145 --> 00:05:39.810 measurements to expected bladder capacity.

NOTE Confidence: 0.9780492

00:05:39.810 --> 00:05:43.038 And established norms for postvoid residuals.

NOTE Confidence: 0.9776121

00:05:45.590 --> 00:05:48.254 The good news is that you will not

NOTE Confidence: 0.9776121

00:05:48.254 --> 00:05:50.518 be expected to memorize anything.

NOTE Confidence: 0.9776121

00:05:50.520 --> 00:05:52.530 All of the necessary formulas that

NOTE Confidence: 0.9776121

00:05:52.530 --> 00:05:55.116 you may need will be embedded into

NOTE Confidence: 0.9776121

00:05:55.116 --> 00:05:57.474 the queue path worksheet created for

NOTE Confidence: 0.9776121

00:05:57.474 --> 00:05:59.610 bladder volume evaluations in RED.

NOTE Confidence: 0.9776121

00:05:59.610 --> 00:06:01.842 This will help you with your

NOTE Confidence: 0.9776121

00:06:01.842 --> 00:06:04.160 interpretations as you fill out the

NOTE Confidence: 0.9776121

00:06:04.160 --> 00:06:06.060 worksheet findings in real time.

NOTE Confidence: 0.9903977

00:06:08.940 --> 00:06:11.369 So let's look at some practice cases.

NOTE Confidence: 0.96526253

00:06:15.910 --> 00:06:19.510 Case one, a 2 year old girl with

NOTE Confidence: 0.96526253

00:06:19.510 --> 00:06:21.310 Linux gesto seizure disorder.

NOTE Confidence: 0.96526253

00:06:21.310 --> 00:06:23.760 G2 dependance neurogenic bladder and

NOTE Confidence: 0.96526253

00:06:23.760 --> 00:06:25.720 global developmental delay presents

NOTE Confidence: 0.96526253

00:06:25.720 --> 00:06:27.858 with unexplained tachycardia and

NOTE Confidence: 0.96526253

00:06:27.858 --> 00:06:29.966 increase in seizure frequency.

NOTE Confidence: 0.96526253

00:06:29.970 --> 00:06:32.196 As part of her work up,

NOTE Confidence: 0.96526253

00:06:32.200 --> 00:06:33.464 urine testing is ordered.

NOTE Confidence: 0.96526253

00:06:33.464 --> 00:06:35.853 Mom opts to do a urine catheterization

NOTE Confidence: 0.96526253

00:06:35.853 --> 00:06:39.245 herself as she is routinely dusis at home,

NOTE Confidence: 0.96526253

00:06:39.250 --> 00:06:41.470 but she was unsuccessful and reports

NOTE Confidence: 0.96526253

00:06:41.470 --> 00:06:43.594 was unable to obtain any urine.

NOTE Confidence: 0.96526253

00:06:43.594 --> 00:06:45.960 She is very concerned that her daughter

NOTE Confidence: 0.96526253

00:06:46.019 --> 00:06:48.185 is dehydrated and the nursing staff

NOTE Confidence: 0.96526253

00:06:48.185 --> 00:06:50.525 does not feel comfortable performing a

NOTE Confidence: 0.96526253

00:06:50.525 --> 00:06:52.600 repeat catheterization at this time.

NOTE Confidence: 0.98303807

00:06:55.290 --> 00:06:56.850 You first recorded the bladder

NOTE Confidence: 0.98303807

00:06:56.850 --> 00:06:57.786 in transverse orientation,

NOTE Confidence: 0.98303807

00:06:57.790 --> 00:06:59.350 and although it appears less

NOTE Confidence: 0.98303807

00:06:59.350 --> 00:07:00.910 round than you usually expect,

NOTE Confidence: 0.98303807

00:07:00.910 --> 00:07:03.712 there seems to be a fair

NOTE Confidence: 0.98303807

00:07:03.712 --> 00:07:05.580 amount of urine present.

NOTE Confidence: 0.98303807

00:07:05.580 --> 00:07:07.506 You then rotate the probe 90

NOTE Confidence: 0.98303807

00:07:07.506 --> 00:07:09.859 degrees and assess the letter in

NOTE Confidence: 0.98303807

00:07:09.859 --> 00:07:11.368 longitudinal orientation where

NOTE Confidence: 0.98303807

00:07:11.370 --> 00:07:14.075 once again the bladder is seen to

NOTE Confidence: 0.98303807

00:07:14.075 --> 00:07:16.390 be filled with plenty of urine.

NOTE Confidence: 0.9756823

00:07:19.420 --> 00:07:21.450 You go back to transverse

NOTE Confidence: 0.9756823

00:07:21.450 --> 00:07:23.476 orientation and freeze the screen.

NOTE Confidence: 0.9756823

00:07:23.476 --> 00:07:25.100 Obtain a height measurement

NOTE Confidence: 0.9756823

00:07:25.100 --> 00:07:27.130 from top to bottom. Obtain

NOTE Confidence: 0.9756823

00:07:27.130 --> 00:07:29.979 a width measurement from left to right.

NOTE Confidence: 0.9502981

00:07:30.680 --> 00:07:35.340 Save that image. He then get the length

NOTE Confidence: 0.9502981

00:07:35.340 --> 00:07:38.830 of the bladder in longitudinal orientation,

NOTE Confidence: 0.9502981

00:07:38.830 --> 00:07:41.156 placing the calipers across

NOTE Confidence: 0.9502981

00:07:41.156 --> 00:07:43.480 the longest possible distance.

NOTE Confidence: 0.9502981

00:07:43.480 --> 00:07:45.808 The ultrasound machine automatically

NOTE Confidence: 0.9502981

00:07:45.808 --> 00:07:48.136 calculates the volume estimate

NOTE Confidence: 0.9502981

00:07:48.140 --> 00:07:49.889 of 82 CCS.

NOTE Confidence: 0.94219744

00:07:52.790 --> 00:07:55.680 You review these findings with mum

NOTE Confidence: 0.94219744

00:07:55.680 --> 00:07:59.064 and the nursing staff and feel that a

NOTE Confidence: 0.94219744

00:07:59.064 --> 00:08:01.949 repeat attempt at urine catheterization

NOTE Confidence: 0.94219744

00:08:01.950 --> 00:08:04.359 would be reasonable to perform.

NOTE Confidence: 0.9604902

00:08:07.260 --> 00:08:09.272 Repeat catheterization is successful

NOTE Confidence: 0.9604902

00:08:09.272 --> 00:08:11.792 and ultimately diagnostic for a

NOTE Confidence: 0.9604902

00:08:11.792 --> 00:08:14.313 urinary tract infection with greater

NOTE Confidence: 0.9604902

00:08:14.313 --> 00:08:16.834 than 100,000 colony forming units

00:08:16.834 --> 00:08:19.354 of Enterococcus arena over sound

00:08:19.354 --> 00:08:21.370 performed by diagnostic radiology.

00:08:21.370 --> 00:08:23.975 Revealed debris within the right

00:08:23.975 --> 00:08:26.580 erator which was causing obstruction

00:08:26.662 --> 00:08:28.927 and hydroureter oh nephro sis,

00:08:28.930 --> 00:08:31.445 which was managed by the

00:08:31.445 --> 00:08:32.954 inpatient urology service.

00:08:35.370 --> 00:08:38.339 So as it turns out, it does not

00:08:38.339 --> 00:08:40.530 take much urine at all to predict

00:08:40.605 --> 00:08:42.525 successful catheterization and patient

00:08:42.525 --> 00:08:45.900 under two years of age without pocus.

00:08:45.900 --> 00:08:47.880 To visualize splatter contents,

00:08:47.880 --> 00:08:50.850 the rate of successful urine catheterization

00:08:50.925 --> 00:08:52.707 in this age group was published

00:08:52.707 --> 00:08:54.929 to be 72% during the observation.

00:08:54.929 --> 00:08:57.587 ULL phase of a study published

NOTE Confidence: 0.97904736

00:08:57.587 --> 00:08:59.669 by Chen at all in 2005.

NOTE Confidence: 0.97904736

00:08:59.670 --> 00:09:02.448 However, when the investigators applied Pocus

NOTE Confidence: 0.97904736

00:09:02.448 --> 00:09:05.210 to determine whether there was at least.

NOTE Confidence: 0.97904736

00:09:05.210 --> 00:09:08.578 Two CC's of urine present in the bladder.

NOTE Confidence: 0.97904736

00:09:08.580 --> 00:09:11.455 The rate of successful catheterization

NOTE Confidence: 0.97904736

00:09:11.455 --> 00:09:14.797 when done by nursing staff was

NOTE Confidence: 0.97904736

00:09:14.797 --> 00:09:17.429 reported to be as high as 96%.

NOTE Confidence: 0.97904736

00:09:17.430 --> 00:09:20.111 Case 2 highlights the point of care

NOTE Confidence: 0.97904736

00:09:20.111 --> 00:09:22.470 ultrasound role in ovarian torsion.

NOTE Confidence: 0.97904736

00:09:22.470 --> 00:09:24.150 To expedite confirmatory testing,

NOTE Confidence: 0.97904736

00:09:24.150 --> 00:09:27.930 here we have an 18 year old female who

NOTE Confidence: 0.97904736

00:09:27.930 --> 00:09:30.450 presents with sudden onset of intense

NOTE Confidence: 0.97904736

00:09:30.450 --> 00:09:32.970 right lower quadrant pain and nausha.

NOTE Confidence: 0.97904736

00:09:32.970 --> 00:09:36.323 She reports no fever or he materia

NOTE Confidence: 0.97904736

00:09:36.323 --> 00:09:38.692 denies the possibility of pregnancy

NOTE Confidence: 0.97904736

00:09:38.692 --> 00:09:41.632 and has never had a pelvic exam.

NOTE Confidence: 0.97904736

00:09:41.640 --> 00:09:42.470 For you,

NOTE Confidence: 0.97904736

00:09:42.470 --> 00:09:44.545 she's very tearful and uncomfortable

NOTE Confidence: 0.97904736

00:09:44.545 --> 00:09:47.455 and is tender to touch to the

NOTE Confidence: 0.97904736

00:09:47.455 --> 00:09:49.175 right lower quadrant area,

NOTE Confidence: 0.97904736

00:09:49.175 --> 00:09:51.785 you need to prioritize getting a

NOTE Confidence: 0.97904736

00:09:51.785 --> 00:09:53.675 urine sample with a transabdominal

NOTE Confidence: 0.97904736

00:09:53.675 --> 00:09:54.922 ultrasound to assess.

NOTE Confidence: 0.97904736

00:09:54.922 --> 00:09:56.170 For ovarian torsion,

NOTE Confidence: 0.97904736

00:09:56.170 --> 00:09:58.660 you record her bladder and transfers

NOTE Confidence: 0.97904736

00:09:58.660 --> 00:10:00.320 orientation and notes nicely.

NOTE Confidence: 0.97904736

00:10:00.320 --> 00:10:01.976 Fluid filled structure with

NOTE Confidence: 0.97904736

00:10:01.976 --> 00:10:03.218 posterior acoustic enhancement.

NOTE Confidence: 0.9717194

00:10:05.480 --> 00:10:07.520 Upon interrogation and longitudinal access,

NOTE Confidence: 0.9717194

00:10:07.520 --> 00:10:10.089 you again see a nicely filled bladder

NOTE Confidence: 0.9717194

00:10:10.089 --> 00:10:13.209 with a normal appearing uterus behind it.

NOTE Confidence: 0.983724

00:10:15.570 --> 00:10:18.588 He obtain your measurements and transverse.

NOTE Confidence: 0.983724

00:10:18.590 --> 00:10:22.118 The bladder height is about 7.3 centimeters.

NOTE Confidence: 0.983724

00:10:22.120 --> 00:10:26.278 The bladder width is about 9.7 centimeters.

NOTE Confidence: 0.983724

00:10:26.280 --> 00:10:28.455 And in longitudinal, your bladder

NOTE Confidence: 0.983724

00:10:28.455 --> 00:10:30.632 length is about 8.5 centimeters,

NOTE Confidence: 0.983724

00:10:30.632 --> 00:10:33.245 which gives you a total bladder

NOTE Confidence: 0.983724

00:10:33.245 --> 00:10:35.420 volume of about 314 CCS.

NOTE Confidence: 0.983724

00:10:35.420 --> 00:10:37.590 This is incredibly useful information,

NOTE Confidence: 0.983724

00:10:37.590 --> 00:10:40.266 as you would expect bladder capacity

NOTE Confidence: 0.983724

00:10:40.266 --> 00:10:43.680 and an adult to be about 500 CC's.

NOTE Confidence: 0.9864936

00:10:45.900 --> 00:10:48.728 You determined she should be ready for

NOTE Confidence: 0.9864936

00:10:48.728 --> 00:10:50.370 radiology ultrasound without delay,

NOTE Confidence: 0.9864936

00:10:50.370 --> 00:10:53.338 but you also have a bonus finding on

NOTE Confidence: 0.9864936

00:10:53.338 --> 00:10:56.197 your bedside scan when you gently angle

NOTE Confidence: 0.9864936

00:10:56.197 --> 00:10:59.174 her probe towards her right side using

NOTE Confidence: 0.9864936

00:10:59.174 --> 00:11:01.730 her bladder as an acoustic window.

NOTE Confidence: 0.9864936

00:11:01.730 --> 00:11:04.978 You actually can't see her ovary on the

NOTE Confidence: 0.9864936

00:11:04.978 --> 00:11:07.010 right, it appears morphologically normal,

NOTE Confidence: 0.9864936

00:11:07.010 --> 00:11:08.636 and its size, shape,

NOTE Confidence: 0.9864936

00:11:08.636 --> 00:11:10.680 and appearance as small follicular

NOTE Confidence: 0.9864936

00:11:10.680 --> 00:11:13.200 structures within these findings make it

NOTE Confidence: 0.9864936

00:11:13.200 --> 00:11:15.239 incredibly unlikely that your patient.

NOTE Confidence: 0.9864936

00:11:15.240 --> 00:11:18.468 Has acute right sided ovarian torsion.

NOTE Confidence: 0.967141000000001

00:11:20.840 --> 00:11:23.496 On the flip side, you may have come

NOTE Confidence: 0.967141000000001

00:11:23.496 --> 00:11:25.985 across a case where something just

NOTE Confidence: 0.967141000000001

00:11:25.985 --> 00:11:29.075 doesn't look quite right deep in the

NOTE Confidence: 0.967141000000001

00:11:29.075 --> 00:11:31.770 pelvis in this patient who there were

NOTE Confidence: 0.967141000000001

00:11:31.770 --> 00:11:33.960 also some concerns for ovarian torsion,

NOTE Confidence: 0.967141000000001

00:11:33.960 --> 00:11:37.036 you can see a large ovoid lesion with

NOTE Confidence: 0.967141000000001

00:11:37.036 --> 00:11:38.792 some follicular architecture which

NOTE Confidence: 0.967141000000001

00:11:38.792 --> 00:11:41.327 is present behind the uterus and

NOTE Confidence: 0.967141000000001

00:11:41.327 --> 00:11:43.457 pushing up on the uterine fundus.

NOTE Confidence: 0.967141000000001

00:11:43.460 --> 00:11:45.410 The bladder here is decompressed,

NOTE Confidence: 0.967141000000001

00:11:45.410 --> 00:11:47.500 but even though diagnostics for

NOTE Confidence: 0.967141000000001

00:11:47.500 --> 00:11:49.590 ovarian torsion by ultrasound are

NOTE Confidence: 0.967141000000001

00:11:49.661 --> 00:11:51.977 best left for our radiology experts.

NOTE Confidence: 0.967141000000001

00:11:51.980 --> 00:11:54.500 To confirm any abnormal screening findings

NOTE Confidence: 0.967141000000001

00:11:54.500 --> 00:11:57.477 such as this one should heighten the

NOTE Confidence: 0.967141000000001

00:11:57.477 --> 00:12:00.319 level of urgency and should also help

NOTE Confidence: 0.967141000000001

00:12:00.395 --> 00:12:03.187 expedite the time it takes to get your

NOTE Confidence: 0.967141000000001

00:12:03.187 --> 00:12:05.358 patient to her definitive imaging study.

NOTE Confidence: 0.967141000000001

00:12:05.358 --> 00:12:08.489 Now back to the case of the patient

NOTE Confidence: 0.967141000000001

00:12:08.489 --> 00:12:11.039 with acute right lower quadrant pain.

NOTE Confidence: 0.967141000000001

00:12:11.040 --> 00:12:12.980 Your pocus helped determine the

NOTE Confidence: 0.967141000000001

00:12:12.980 --> 00:12:14.920 suitability of getting her over

NOTE Confidence: 0.967141000000001

00:12:14.989 --> 00:12:17.209 to radiology to have their formal

NOTE Confidence: 0.967141000000001

00:12:17.209 --> 00:12:19.370 diagnostic testing done at radiology.

NOTE Confidence: 0.967141000000001

00:12:19.370 --> 00:12:22.334 A normal right sided ovary was

NOTE Confidence: 0.967141000000001

00:12:22.334 --> 00:12:23.816 again it visualized.

NOTE Confidence: 0.967141000000001

00:12:23.820 --> 00:12:25.604 However, she had findings

NOTE Confidence: 0.967141000000001

00:12:25.604 --> 00:12:27.388 compatible with acute appendicitis.

NOTE Confidence: 0.967141000000001

00:12:27.390 --> 00:12:27.791 Luckily,

NOTE Confidence: 0.967141000000001

00:12:27.791 --> 00:12:30.598 you had already made the right call

NOTE Confidence: 0.967141000000001

00:12:30.598 --> 00:12:33.190 to obtain lab intravenous access,

NOTE Confidence: 0.967141000000001

00:12:33.190 --> 00:12:34.525 made her NPO,

NOTE Confidence: 0.967141000000001

00:12:34.525 --> 00:12:36.750 and started normal saline bolus.

NOTE Confidence: 0.9737252

00:12:39.480 --> 00:12:41.100 Case 3 is a post

NOTE Confidence: 0.9737252

00:12:41.100 --> 00:12:42.720 void residual bladder volume measurement.

NOTE Confidence: 0.9737252

00:12:42.720 --> 00:12:45.308 In this case a 10 year old circumcised

NOTE Confidence: 0.9737252

00:12:45.308 --> 00:12:46.930 male presents with mild idiopathic

NOTE Confidence: 0.9737252

00:12:46.930 --> 00:12:49.198 swelling to his penis and had an

NOTE Confidence: 0.9737252

00:12:49.198 --> 00:12:50.820 otherwise normal genito urinary exam.

NOTE Confidence: 0.9737252

00:12:50.820 --> 00:12:52.440 On review of symptoms, he

NOTE Confidence: 0.9737252

00:12:52.440 --> 00:12:55.356 says that he wakes up to go to the

NOTE Confidence: 0.9737252

00:12:55.360 --> 00:12:57.298 bathroom several times at night and

NOTE Confidence: 0.9737252

00:12:57.298 --> 00:12:59.608 for over a year the teachers had

NOTE Confidence: 0.9737252

00:12:59.608 --> 00:13:01.835 reported that he goes to the bathroom

NOTE Confidence: 0.9737252

00:13:01.835 --> 00:13:03.779 several times a day while he's

NOTE Confidence: 0.9737252

00:13:03.780 --> 00:13:07.020 at school. Your plan is to do a dose of

NOTE Confidence: 0.982450425

00:13:07.020 --> 00:13:08.945 Benadryl for the. Mild swelling

NOTE Confidence: 0.982450425

00:13:08.945 --> 00:13:10.710 and obtained a year analysis

NOTE Confidence: 0.982450425

00:13:10.710 --> 00:13:12.238 to screen for potential causes

NOTE Confidence: 0.98768556

00:13:12.240 --> 00:13:13.536 of these symptoms. However,

NOTE Confidence: 0.98768556

00:13:13.536 --> 00:13:15.610 he is only able to avoid a

NOTE Confidence: 0.98768556

00:13:15.610 --> 00:13:17.140 small amount with great difficulty.

NOTE Confidence: 0.9833589

00:13:22.540 --> 00:13:24.252 He record his bladder and

NOTE Confidence: 0.9833589

00:13:24.252 --> 00:13:25.281 transfers orientation and

NOTE Confidence: 0.9833589

00:13:25.281 --> 00:13:27.238 slowly fan all the way through.

NOTE Confidence: 0.9893738

00:13:32.750 --> 00:13:34.754 He then record his bladder

NOTE Confidence: 0.9893738

00:13:34.754 --> 00:13:37.510 and longitudinal orientation.

NOTE Confidence: 0.95959115

00:13:37.510 --> 00:13:39.855 When you obtain your

NOTE Confidence: 0.95959115

00:13:39.855 --> 00:13:41.610 measurements, his bladder

NOTE Confidence: 0.95959115

00:13:41.610 --> 00:13:44.540 volume is a 323CC's calculated,

NOTE Confidence: 0.95959115

00:13:44.540 --> 00:13:47.468 which is an abnormal postvoid

NOTE Confidence: 0.95959115

00:13:47.468 --> 00:13:49.226 residual which signifies

NOTE Confidence: 0.95959115

00:13:49.226 --> 00:13:50.984 incomplete bladder emptying.

NOTE Confidence: 0.98416805

00:13:53.730 --> 00:13:55.330 Based on your focus

NOTE Confidence: 0.98416805

00:13:55.330 --> 00:13:58.116 results, you have the patient go to

NOTE Confidence: 0.98416805

00:13:58.116 --> 00:14:00.908 radiology to have a renal ultrasound done

NOTE Confidence: 0.98416805

00:14:00.910 --> 00:14:02.110 where hydronephrosis has

NOTE Confidence: 0.98416805

00:14:02.110 --> 00:14:03.710 not found but incomplete.

NOTE Confidence: 0.98416805

00:14:03.710 --> 00:14:05.700 Bladder emptying again is confirmed,

NOTE Confidence: 0.98416805

00:14:05.700 --> 00:14:08.244 your urinalysis did not show any

NOTE Confidence: 0.98416805

00:14:08.244 --> 00:14:10.889 signs of glucose urea or signs of

NOTE Confidence: 0.98416805

00:14:10.890 --> 00:14:12.482 infection. Putting everything together,

NOTE Confidence: 0.98416805

00:14:12.482 --> 00:14:14.880 you recommend a trial of miralax

NOTE Confidence: 0.98416805

00:14:14.880 --> 00:14:16.468 with an outpatient referral

NOTE Confidence: 0.98416805

00:14:16.470 --> 00:14:18.070 to urology. Should symptoms

NOTE Confidence: 0.98416805

00:14:18.070 --> 00:14:20.064 persist, you also review the

NOTE Confidence: 0.98416805

00:14:20.064 --> 00:14:22.060 potential for you and retention

NOTE Confidence: 0.98416805

00:14:22.060 --> 00:14:23.652 secondary to anti histamine

NOTE Confidence: 0.98416805

00:14:23.652 --> 00:14:24.846 medications like Benadryl.

NOTE Confidence: 0.977162

00:14:27.040 --> 00:14:28.452 A potential pitfall when

NOTE Confidence: 0.977162

00:14:28.452 --> 00:14:30.564 scanning for the bladder is at

NOTE Confidence: 0.977162

00:14:30.570 --> 00:14:33.034 your probe is actually not low enough.

NOTE Confidence: 0.977162

00:14:33.040 --> 00:14:35.152 Note these split screens of the

NOTE Confidence: 0.977162

00:14:35.152 --> 00:14:37.274 same patient during a scan done

NOTE Confidence: 0.977162

00:14:37.274 --> 00:14:39.988 around the same time on the top row,

00:14:39.988 --> 00:14:41.884 the curvilinear probe is placed in

00:14:41.884 --> 00:14:44.284 the suprapubic area with the probe

00:14:44.284 --> 00:14:46.107 slightly angled towards the umbilicus.

00:14:46.107 --> 00:14:48.606 This results in only about to be

00:14:48.606 --> 00:14:50.813 present and seen on the monitor on

00:14:50.813 --> 00:14:53.116 the 2nd row of images the curvilinear

00:14:53.116 --> 00:14:55.930 probe has been placed over the pubic

00:14:55.930 --> 00:14:57.489 synthesis and slightly angled.

00:14:57.490 --> 00:14:58.747 In a caudad direction.

00:14:58.747 --> 00:14:59.698 At this point,

00:14:59.698 --> 00:15:01.963 the bladder can be seen to come

00:15:01.963 --> 00:15:03.438 into view on the screen.

00:15:05.930 --> 00:15:07.605 The other important pitfall to

00:15:07.605 --> 00:15:10.135 be aware of is that large cystic

00:15:10.135 --> 00:15:12.100 structures in the pelvis may

00:15:12.100 --> 00:15:14.325 mimic the appearance of a bladder.

NOTE Confidence: 0.98226005

00:15:14.325 --> 00:15:16.515 I would pay particular careful attention

NOTE Confidence: 0.98226005

00:15:16.515 --> 00:15:18.705 and patients who present with urine

NOTE Confidence: 0.98226005

00:15:18.705 --> 00:15:20.530 retention as a chief complaint.

NOTE Confidence: 0.98226005

00:15:20.530 --> 00:15:23.077 Here we see a 10 year old girl who

NOTE Confidence: 0.98226005

00:15:23.077 --> 00:15:25.018 complained of new onset Constipation

NOTE Confidence: 0.98226005

00:15:25.018 --> 00:15:27.003 and a sensation of incomplete

NOTE Confidence: 0.98226005

00:15:27.003 --> 00:15:28.682 bladder emptying ultrasound images

NOTE Confidence: 0.98226005

00:15:28.682 --> 00:15:31.118 by point of care and radiology.

NOTE Confidence: 0.98226005

00:15:31.120 --> 00:15:33.310 I thought the cystic structure being

NOTE Confidence: 0.98226005

00:15:33.310 --> 00:15:35.211 measured was her bladder, however.

NOTE Confidence: 0.98226005

00:15:35.211 --> 00:15:36.975 Her bladder was completely

NOTE Confidence: 0.98226005

00:15:36.975 --> 00:15:38.739 decompressed and empty during

NOTE Confidence: 0.98226005

00:15:38.739 --> 00:15:41.108 the time of the ultrasound scans.

NOTE Confidence: 0.98226005

00:15:41.110 --> 00:15:43.896 What was thought to have been a

NOTE Confidence: 0.98226005

00:15:43.896 --> 00:15:46.165 ureteral seal was actually part

NOTE Confidence: 0.98226005

00:15:46.165 --> 00:15:49.135 of a mature cystic teratoma which

NOTE Confidence: 0.98226005

00:15:49.135 --> 00:15:51.611 was diagnosed by pelvic MRI at

NOTE Confidence: 0.98226005

00:15:51.611 --> 00:15:53.705 the time of the MRI study.

NOTE Confidence: 0.98226005

00:15:53.710 --> 00:15:55.984 The bladder could be better visualized

NOTE Confidence: 0.98226005

00:15:55.984 --> 00:15:58.509 and the Mass Effect causing bladder

NOTE Confidence: 0.98226005

00:15:58.509 --> 00:16:00.844 compression was more clearly seen.

NOTE Confidence: 0.9815891

00:16:03.840 --> 00:16:06.132 In summary, we have reviewed some

NOTE Confidence: 0.9815891

00:16:06.132 --> 00:16:08.423 cases where POCUS was used as

NOTE Confidence: 0.9815891

00:16:08.423 --> 00:16:11.098 a tool to expedite patient care

NOTE Confidence: 0.9815891

00:16:11.098 --> 00:16:13.483 and help to guide procedures.

NOTE Confidence: 0.9815891

00:16:13.490 --> 00:16:15.830 Bladder scan by pocus for the

NOTE Confidence: 0.9815891

00:16:15.830 --> 00:16:17.390 assessment and interpretation of

NOTE Confidence: 0.9815891

00:16:17.390 --> 00:16:19.340 body measurements is an important

NOTE Confidence: 0.9815891

00:16:19.340 --> 00:16:21.680 skill for Penn physicians to learn.

NOTE Confidence: 0.9815891

00:16:21.680 --> 00:16:23.048 As always, with focus.

NOTE Confidence: 0.9815891

00:16:23.048 --> 00:16:24.758 If you see something unexpected

NOTE Confidence: 0.9815891

00:16:24.758 --> 00:16:27.371 that doesn't fall into the typical

NOTE Confidence: 0.9815891

00:16:27.371 --> 00:16:28.697 pattern recognition appearance,

NOTE Confidence: 0.9815891

00:16:28.700 --> 00:16:30.260 please do not hesitate