

MEETING ABSTRACT

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Experience of use of bedside ultrasonography for detection of Abdominal aortic aneurysm in a tertiary medical center in Taiwan, ROC

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Background

Rupture of abdominal aortic aneurysm is one of the life-threatening diseases in Emergency Department (ED) and it can be misdiagnosed. It happens mostly in the people who are in average of age 75 to 84 years. Use of bedside ultrasonography has become more common in daily practice of emergency physician (EP) for approaching patient in ED, which has chief complaint of acute abdomen. Especially in the life-threatening rupture abdominal aortic aneurysm, bedside sonography can be more safe and adequate time-saving tool for EP for detection, diagnosis and next crucial management. We reviewed the database of a tertiary medical center for collection of first diagnosis of abdominal aortic aneurysm made in Emergency Department.

Objective

To acknowledge the utility of bedside ultrasonography for detection of AAA in ED.

Patients and methods

SKH hospital is a tertiary medical center in Taipei. There have average 5000 to 6000 people visit to ED in each month. We searched the patient who visited to Emergency Department with diagnosis of abdominal aortic aneurysm (AAA) from 2010 year through April of 2014 via patient medical information database of our hospital.

Total 77 patients were included, 18 patients was excluded due to history of AAA, 23 patients was excluded due to no diagnosis of AAA but with alternative diagnosis such as thoracic aneurysm, aortic dissection and so on.

Total 31 patients were first diagnosed of AAA in ED within these 4 years and 4 months. Almost two of third of these cases was first diagnosed by utility of bedside ultrasonography. Table 1.

Result

Almost the emergent cases were diagnosed of ruptured AAA within 10 to 20 minutes by bedside ultrasonography. Utility of bedside ultrasonography shortened the time of Computed topography (CT) imaging study and decision making to crucial management (Surgical repair) especially in overcrowded ED. These cases should be diagnosed rapidly and treated aggressively otherwise they were dead. Bedside sonography has been also played a role in diagnosing the AAA which has atypical presentation such as hematuria or scrotal pain in our experience.

The larger size of AAA the easier to detect by bedside ultrasonography. Detection of rupture of AAA by bedside ultrasonography was amazingly noted in our experience (6 of 8 ruptured cases). In addition, use of ultrasonography in patient who is suspected AAA make EP shorten the time to computed topography performed in overcrowded ED and surgical repair if it was ruptured.

In rare condition like mycotic aneurysm, utility of bedside ultrasonography sometimes plays a role, we have one case of mycotic aneurysm first detected by ultrasonography.

Conclusion

Bedside ultrasonography became a convenient and diagnostic tool for detection of AAA in

Emergency Department even its dangerous complication like rupture or getting infected.

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Table 1 Collection of patient which visited to ED with diagnosis of AAA

Year	Total number	History of AAA	No diagnosis of AAA	First diagnosis of AAA	Detection First by bedside sonography
2010/1/1~12/31	11	3	4	4	3
2011/1/1~12/31	23	4	9	10	9
2012/1/1~12/31	18	7	4	6	6
2013/1/1~12/31	21	6	7	8	4
2014/1/1~4/30	4	0	1	3	2
Total	77	18	23	31	24

Sex	Age	Chief complaint	ED arrival to Sonography performed Hour/minute	ED arrival to CT performed Hour/minute	Finding of sonography	Finding of CT	Time of ED to Operation room	Hospital stay (days)	Disposition
Year 2010									
M	76	Left scrotal pain for days	01:04	03:36	Negative	Ruptured iliac artery aneurysm	04:48	24	Discharged
F	83	Epigastric for 4 hours	02:13	07:03	4.3cm AAA	AAA 5cm, no rupture	No operation		Against advice discharged
F	60	Conscious change for 1 day	00:19	00:29	AAA with ascites	Ruptured AAA	01:04	21	Discharged
M	84	Urine frequency, hematuria for 2 weeks	01:08	01:55	6cm AAA	6cm AAA, no rupture	No operation		Discharged
Year 2011									
M	80	Hematuria for days	01:04	03:05	AAA 6.7 x 7.5 cm	AAA 7.3 cm, no rupture	Operation on day 3		17 Discharged
M	76	Abdominal fullness for days	00:06	01:21	AAA 5cm	AAA 6.37cm, impending	04:14		11 Discharged
M	82	Lower abdominal pain, sudden onset	00:22	00:42	AAA 8cm	AAA rupture	01:17		Expired after 12 hours
F	80	Sudden onset of left abdominal pain	00:05	00:51	AAA 6.7 cm, rupture	AAA rupture	01:21		Against advice discharged
M	76	Out of hospital cardiac arrest	00:02	Not performed	AAA rupture	Not performed	No operation		Against advice discharged
M	64	Nausea for 1 day	00:32	00:47	AAA 5.8cm leakage	AAA 8cm rupture	01:28		16 Discharged
M	86	Sudden onset of abdominal pain	00:08	03:15	AAA 4cm	AAA 4.5cm	No operation		Discharged from ER
M	49	Back pain for 1 day	00:05	01:35	AAA 3.5cm	AAA 3.75cm	No operation		Discharged from ER
M	77	Short of breathiness' was noted just now	Not performed	01:48	Not performed	Descending aortic aneurysm	Operation on day 9		21 Discharged
Year 2013									
M	75	Sudden onset of consciousness disturbance	00:03	Not performed	AAA rupture	Not performed	00:53		Expired
M	78	Fainted out just now	00:01	00:05	AAA 9.3cm	Not performed	00:56		27
M	87	Right back pain for days	00:03	00:55	AAA 8cm	no rupture	Operation on day 3		5 Discharged
M	75	Abdominal fullness for 2 months	Not performed	01:08	Not performed	AAA 7.7 X 7.6 cm			10 Discharged
M	63	Left flank pain for 3 days	00:12	00:16	Hypochoic content around aorta	AAA, mycotic aneurysm	Operation on day 4		31 Discharged
M	66	Back pain after hit by motorcycle hours ago	Not performed	03:54	Not performed	AAA 8.9cm	No operation		6
M	90	Syncope just now	Not performed	02:59	Not performed	AAA, mycotic aneurysm	Operation on day 3		14 Discharged
M	84	Dizziness for 1 day	Not performed	02:20	Not performed	AAA 4cm			Discharged
M	70	Syncope just now	Not performed	00:19	Not performed	AAA 4.2cm			Discharged
Year 2014									
M	71	Dizziness for hours	00:14	00:25	AAA 6cm	AAA			Discharged
M	54	Left flank pain and syncope just now	00:05	00:15	AAA rupture	AAA rupture	00:40		12 Discharged
M	82	Sudden onset of hiccup and neck pain	Not performed	03:26	Not performed	AAA 4cm			Discharged

Figure 1 Data of patients which were diagnosed as Abdominal Aortic Aneurysm in our Emergent Department within 2010/1/1 to 2014/4/30

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